consent of the owner of the antenna support structure is obtained).

- A change in the EIRP of the transmission system of up to 1.5 dB in any direction.

- Digitization, precision frequency offset, or other upgrades to the EBS transmission or reception systems that allow the proponent(s) to invoke more advantageous interference protection requirements applicable to upgraded systems.[201]

92. *Safe Harbor # 2.* This safe harbor may apply when an EBS licensee has channel-shifted its single video programming or data transmission track to spectrum licensed to another licensee. Under the transition rules, that track must be on the high-power channel licensed to the EBS licensee upon completion of the transition. For example, the A Group licensee might have shifted its EBS video programming to channel C1. If one of the A Group channels is currently licensed with technical parameters substantially similar to those of channel C1, we should allow a Transition Plan to call for high-power channel A4 to be licensed with the same technical parameters as current channel C1. However, if the current A Group channels are licensed to operate with technical parameters materially different from those of channel C1, the proponent(s) has two options. First, it may arrange a channel swap with the licensee of the C Group so that the A Group licensee will receive high-power channel C4 (which will automatically be licensed with the same transmission parameters as current channel C1) in exchange for channel A4. Second, the proponent(s) may arrange for high-power channel A4 to operate with transmission parameters substantially similar to those of current channel C1 (see Safe Harbor # 1).[202]

(iii) Reimbursement Costs of Transitioning

93. Although several commenters recommend that both MDS and EBS incumbents should pay their own transition costs, we conclude that given the difficulties EBS licensees face in obtaining funding to transition their services, it is in the public interest for a proponent(s) to pay the costs of transitioning EBS licensees and providing comparable facilities.[203] Thus, we agree with the Coalition that the proponent(s) must bear the costs of protecting EBS licensees that choose to continue to operate high-power high-site downstream video and data distribution systems against interference from LBS and UBS cellularized operations. In this connection, we note that there are two responsibilities toward these licensees, which are discussed below. We further conclude that BRS licensees must bear their own expenses in transitioning to the new band plan and complying with the new rules. We disagree with the Coalition, however, that the proponent(s) should pay the costs to modify the facilities of MVPD providers that opt-out[204] because we have not adopted the Coalition's proposal to allow MVPD providers to opt-out of the transition.

(a) Replacement Downconverters for former ITFS licensees

94. To protect against interference from cellularized services in the LBS and UBS, the

[201] Coalition Proposal, Appendix B at 21-22.

[202] *Id.*, Appendix B at 22-23.

[203] *See* IP Wireless Comments at 12.

[204] Under the Coalition's Plan the proponent pays for the costs to modify the facilities of MVPD providers that elect not to transition if a modification is necessary to protect other licensees that are transitioning. *See* Coalition's Proposal, Appendix B at 18.

proponent(s) must install at every eligible EBS receive site a downconverter designed to minimize the reception signals from outside the MBS. As part of the transition process, a proponent(s) must replace an EBS receive site if (1) a reception system was installed at that site on or before the date the EBS licensee receives its Pre-Transition Data Request (see discussion above); (2) the reception system was installed by or at the direction of the EBS licensee; and (3) that reception system is either actually used to receive EBS programming that comports with former Section 74.931(a)(1) of the Rules or is located at a cable television system headend and the cable system relays such EBS programming. Only EBS receive sites within the licensee's thirty-five mile radius PSA circle are eligible to receive replacement downconverters. The details of the replacement of the downconverters will occur during the Transition Planning Period, which is discussed above.

95. The replacement downconverters must satisfy the following minimum technical characteristics:

- The downconverter's input frequency range (the "in-band frequencies") must be 2572 MHz to 2614 MHz and output frequency range must be 294 MHz to 336 MHz;
- The downconversion process must not invert frequencies;
- The nominal gain of the downconverter must be 32 dB, or greater;
- The downconverter must include filtering prior to the first amplifier that attenuates frequencies below 2500 MHz and above 2705 MHz by at least 25 dB;
- The downconverter must have an out-of-band input 3rd order intercept point (input IP3) of at least +9 dBm, where out-of-band is defined as all frequencies below 2566 MHz and all frequencies above 2620 MHz;
- The downconverter must have a typical noise figure of no greater than 3.5 dB and a worst case noise figure of no greater than 4.5 dB cross all in-band frequencies and across its entire intended operating temperature range;
- The downconverter must not introduce a delta group delay of more than 20 nanoseconds for digital operations or 100 nanoseconds for analog operations over any individual six megahertz MBS channel.

(b) Migration of Video Programming and Data Transmission Track for former ITFS licensees

96. The proponent(s) must provide, at its cost, to each former EBS licensee that intends to continue downstream high-power, high-site educational video programming or data transmission services with one programming track on the MBS channels for each EBS video programming or data transmission track the licensee is currently transmitting on a simultaneous basis. To be eligible for migration, a program track must contain EBS programming that complies with former Section 74.931(a)(1) of the Commission's Rules. Only programming tracks being transmitted on December 31, 2002 or within six months prior thereto should be migrated at the proponent(s)'s cost. Each eligible programming track must be migrated to spectrum in the MBS that will be licensed to the affected EBS licensee at the conclusion of the transition. The proponent(s)'s Transition Plan must provide for the MBS channels to be authorized to operate with transmission parameters that are substantially similar to those of the licensee's current operation. In addition, after the transition, the desired-to-undesired signal level ratio at each of the receive sites securing a replacement downconverter must satisfy the following criteria:

97. *Co-channel D/U Ratio.* In cases where the post-transition desired signal is transmitted using analog modulation, the actual co-channel D/U ratio measured at the output of the reception antenna must be at least the lesser of (i) 45 dB; or (ii) the actual pre-transmission D/U ratio less 1.5 dB. In cases where the post-transition desired signal will be transmitted using digital modulation, the actual co-channel D/U

ratio measured at the output of the reception antenna must be at least the lesser of (i) 32 dB; or (ii) the pre-transition D/U ratio less 1.5 dB. Where in implementing the Transition Plan the proponent(s) deploys precise frequency offset in an analog system, the minimum co-channel D/U ratio is reduced to 38 dB, provided that the transmitters have, or are upgraded pursuant to the Transition Plan to have, the appropriate "plus," "zero," or "minus" 10,010 Hertz precision frequency offset with a ± 3 Hz (or better) stability.

98. *Adjacent Channel D/U Ratio.* The actual adjacent channel D/U must equal or exceed the lesser of 0 dB or the actual pre-transmission D/U ratio. However, in the event that the receive site uses receivers, or is upgraded by the proponent(s) as part of the Transition Plan to use receivers, that can tolerate negative adjacent channel D/U ratios, the actual adjacent channel D/U ratio at such receive site must equal or exceed such negative adjacent channel D/U ratio.

(c) BRS Costs

99. To prevent a proponent(s) from incurring all of the costs associated with transitioning an MEA, we conclude that former MDS licensees must pay the costs of their own transition. We believe that the cost-sharing rules we adopt are not only equitable but will promote the rapid transition of the 2500-2690 MHz band.

(d) MVPD Costs

100. As we noted above, we do not require the proponent(s) to pay the expenses of MVPD providers.

(iv) Terminating existing operations in transitioned markets.

101. In the process of transitioning from the old band plan to the new band plan, licensees will be required to cease their current service offerings before they are in a position to begin new services under the new band plan. In light of our decision to eliminate the discontinuance of service rules, licensees that are subject to transition will not be in jeopardy of losing their licenses during the transition period. We note that in the *Further Notice of Proposed Rulemaking* attached to this *Report and Order*, we seek comment on the performance requirements that we should adopt for the 2500-2690 MHz band once it is transitioned. We emphasize, however, the licensees should minimize disruption of service to their customers and should notify their customers when service will be disrupted and for how long.

(v) Filing the post-transition notification.

102. The proponent(s) and the affected licensees must jointly file a notification with the Commission providing information that the transition has been completed and that the licensees are operating according to the rules adopted today. Specifically, the notification must provide the identification of the licensees that have transitioned to the band plan adopted today and the specific frequencies on which each licensee is operating. In addition, for each MBS station, the notification must provide the following information: the station coordinates, the make and model of each antenna, the horizontal and vertical pattern of the antenna, the EIRP of the main lobe, orientation and height of antenna center of radiation, transmitter output power, and all line and combiner losses. The proponent(s) must provide copies of the post-transition notice to all parties to the transition. As mentioned above, consistent with the eligibility restrictions on EBS spectrum, we believe that licensees operating in the same geographic area may wish to "swap" or "trade" spectrum with another licensee to be able to create paired spectrum or for some other reason. In essence, we believe that many licensees will seek to transfer, assign, partition, disaggregate, or lease their spectrum to meet the needs of a particular area. In order for

the Commission to facilitate these transactions and the transition of the 2.5 GHz band to the new band plan, we seek comment on ways to streamline administrative procedures in the *FNPRM* attached to this *Report and Order*.

(vi) Bureau Reports

103. As noted above, our goal is a swift transition to the new band plan so that consumers can receive the benefits of new and modified wireless broadband services to be offered in the revised band. We will monitor closely the transition of this band and will take additional action if the rules and procedures set forth in this *Report and Order* are not sufficient to facilitate this transition. To that end, we direct the Bureau to report to the Commission on the status of the transition of the 2.5 GHz band at eighteen months, three years and five years after the effective date of the rules adopted in this *Report and Order*. The reports at this timeframe will take into account the Initiation Plans filed by the proponents with the Commission, up to the three-year deadline for proponents to initiate the transition process, and we look forward to the initiation of transition plans in a substantial number of markets. The five year report will take into account the notification information filed by affected licenses after the transitions are complete.

B. Technical Issues

104. In this section, we address technical proposals to enhance the Services. We sought comments on these issues as well as suggestions concerning other technical rule changes that may be of benefit to the Services.

1. Signal Strength Limits at Geographic Service Area Boundaries

a. Power Limits in the LBS and UBS

105. In the *NPRM*, we sought comment on the signal strength limits to apply at geographic area boundaries. We noted that we recently reallocated forty-eight megahertz in the lower 700 MHz band (broadcast television channels 52-59) to fixed and mobile services while allowing continued provision of broadcast services in the band on a secondary basis, and limited the permissible signal strength at service area boundaries to 40 dBμV/m, the same signal strength limit that we adopted earlier for the upper 700 MHz band and the 800-MHz EA-based and 900-MHz MTA-based SMR services.[205] By comparison, our rules apply a somewhat higher 47 dBμV/m limit at the GSA boundaries for broadband PCS,[206] and for Part 27 services in the 1390-1395, 1432-1435, 2305-2320 and 2345-2360 MHz bands.[207] In all of those cases, the allowed signal strengths are compatible with the provision of low-powered cellular services in adjacent service areas. We tentatively concluded to follow the same general standard in this proceeding but sought comments on any unique characteristics of the 2500-2690 MHz band that might warrant a different approach.

106. After reviewing the comments in this proceeding, we adopt our tentative conclusion to limit signal strengths to 47 dBμV/m in the LBS and UBS, at the geographical service area boundaries. Imposing a signal strength maximum at a licensee's service area boundary is a tried and true mechanism

[205] *See Lower 700 MHz Band R&O*, 17 FCC Rcd at 1070 ¶ 119. This limit is codified at 47 C.F.R. § 27.55(a)(2).

[206] 47 C.F.R. § 24.236.

[207] 47 C.F.R. § 27.55(a)(1) and (3).

for managing and limiting co-channel interference as well as defining rights, obligations and expectations of all licensees in the band. This boundary signal strength will also facilitate coordination between co-channel licensees in adjacent areas. Furthermore, as discussed above, this limit is consistent with other signal limits for other similar services.

107. Fixed Wireless Holdings and Nextnet Wireless oppose the 47 dBμV/m limit and suggest that we retain the current -73.0 dBW/m² limit at the PSA. FWH argues that the incompatibility between high-power and low-power, cellular type systems, sharing the same EBS and BRS frequencies is undisputed. Therefore the Commission should resolve this issue by adopting a uniform signal strength limit for all stations across-the-spectrum. They further argue that retaining the -73.0 dBW/m² limit would offer licensees the needed flexibility to deploy high-speed services, and further suggest that licensees can coordinate and agree on alternative signal strengths at the boundaries of the licensee's GSA. With regard to the LBS and UBS, we are not persuaded by FWH and Nextnet's arguments because they have not demonstrated that low-power stations in these band segments could not provide an adequate service with the proposed 47 dBμV/m signal.

108. However, we do agree that we should retain the -73.0 dBW/m² limit for operations in the MBS where we expect high-power operations to continue. Accordingly, the -73.0 dBW/m² limit in the MBS will be retained because it provides adequate service for high-power stations operating in the MBS.[208] Therefore, we will adopt the 47 dBμV/m limit at the boundaries of the licensee's GSA for the LBS and UBS as proposed by the Coalition, and we will retain the -73.0 dBW/m² limit at the PSA boundaries for stations operating in the MBS.

109. We are, however, sensitive to FWH and Nextnet's concerns about providing adequate service to customers and students near a GSA border. In certain circumstances, a licensee may need to exceed the prescribed power levels at its GSA boundary in order to efficiently serve customers or students near the border. Given the importance of ensuring the ubiquitous availability of broadband services, and the fact that many licensees will want to be able to provide service as soon as possible in order to gain a competitive advantage, we will grant limited relief of the power limits at the GSA border. Specifically, in those instances where there is no neighbor licensee that is constructed and providing service to customers or students,[209] we will allow a licensee to exceed the prescribed power limit at the GSA boundary until there is a licensee providing service that would be affected by the higher power level. Once an affected licensee is providing service, the original licensee will be required to take whatever steps are necessary to comply with the applicable power level at its GSA boundary. Licensees taking advantage of this provision are placed on notice that once an affected licensee is providing service, they will be required to promptly do whatever is necessary to comply with the power limit at the GSA boundary. Of course, if a license obtains the consent of all affected licensees, it may continue to exceed the applicable power limit.

110. In a related matter, the Coalition suggests that the 47 dBμV/m limit be measured 1.5 meters above the ground over 5.5 MHz bandwidth (i.e., the bandwidth of the LBS/UBS channels as

[208] In light of our decision to institute geographic area licensing in the MBS, we will not require applicants to demonstrate compliance with co-channel and adjacent-channel desired-to-undesired signal ratios, as proposed by the Coalition. Coalition Proposal at 36-38. Since licensees will be free to place facilities throughout their GSA, applicants will not necessarily know where the facilities of other licensees will be located. Moreover, we believe the power limits and out-of-band emission limits we have adopted will provide sufficient protection.

[209] We will require that the neighbor licensee be providing actual service to internal or third parties. A licensee that is merely testing or transmitting data not being received by any party would not be entitled to require a licensee to reduce power.

proposed by the Coalition). The Coalition states that 1.5 meters above ground is appropriate because this height represents the approximate height at which handheld devices and other likely customer equipment would be located. We agree. Therefore, in view of the band plan that we are adopting, we will require that the signal strength, when measured, shall be taken over the channel bandwidth (i.e., each 5.5 MHz channel in the LBS and UBS for licensees that hold a full channel block, and for the 5.5 MHz channel in the LBS and UBS for licensees that only hold individual channels) at 1.5 meters above ground where most handheld devices are likely to be operated.

2. Authorization of Mobile Operation

111. Although we have applied both fixed and mobile allocations to the 2500-2690 MHz band, we have required MDS and ITFS licensees to obtain separate authorizations before commencing mobile service. In the *NPRM*, we proposed to authorize MDS and ITFS licensees to engage in mobile operation by blanket-licensing such operation under licensees' GSA authorizations.[210] We sought comment on this proposal and any other requirements we should implement, including but not limited to those discussed throughout the proceeding.

112. The record supports our proposal to blanket license mobile operations in the band pursuant to licensees' GSA authorizations. The Coalition is supportive of this proposal, noting that portable and mobile units will operate at low-power levels and generally will be utilized at relatively low heights above ground level, thus making it unlikely that they will be a source of interference. The Coalition recognizes that a portable unit can be operated at elevated heights (e.g. atop a skyscraper), but believes such instances will be relatively infrequent and should not pose a substantial problem. We agree and adopt our proposal to authorize licensees to engage in mobile operation by blanket licensing such operations under the licensees' geographical service area authorization.

3. Power and Antenna Height Limits

113. *Response Stations*. Our current rules limit response stations operating in the 2500-2690 MHz band to a transmitter output power of 2 watts.[211] The maximum transmitting power for broadband PCS mobile/portable operations in the 1.9 GHz band is 2 watts EIRP.[212] Noting that we adopted the 2-watt limit in the Two-Way Order without any explanation, the Coalition urged in its Proposal that we delete this power limit, arguing that it unduly restricts the flexibility of equipment designers to make the most efficient use of the 2.1 and 2.5 GHz bands.[213] The Coalition emphasized, however, that it was not advocating any change in the restrictions on power contained in Parts 1 and 2 that are designed to assure the protection of human health and safety; in fact, it recommended that we clarify that those limits apply to MDS and ITFS by adding those services to the list of services specifically shown as being subject to the rules.[214]

114. In the *NPRM*, we noted that while the 2-watt EIRP limit on PCS response stations appeared to be a reasonable model to follow when we adopted a similar rule for MDS and ITFS, the

[210] *NPRM*, 18 FCC Rcd at 6777 ¶ 132.

[211] *See* 47 C.F.R. §§ 21.909(g)(2) and 74.939(g)(2).

[212] See 47 C.F.R. § 24.232(b).

[213] Coalition Proposal at 25.

[214] *Id.* at 26.

record of the PCS proceeding indicates that the 2-watt EIRP limit was originally designed to reduce the likelihood of interference with fixed microwave stations in the PCS bands.[215] We sought comment on the extent to which similar concerns should apply for MDS and ITFS, bearing in mind the differences between the incumbent licensees in the MDS/ITFS bands – and their circumstances – as compared with the incumbent licensees in the PCS band. We further pointed out that while compliance with our safety rules may by itself necessitate compliance with a 2-watt limit for portable devices that are normally held close to the user's body, those rules allow higher power levels in circumstances where the response station's transmission antenna is designed to be used at least twenty centimeters away from the body of the user or any nearby persons.

115. In response to our proposal regarding the transmitter output power limitation of 2-watts for response stations, the Coalition commented that it rejects the PCS approach. It notes that the PCS approach was adopted to address a very different sort of problem than is facing MDS and ITFS and should not be considered as a precedent here.

116. We disagree with the Coalition that the PCS approach should be rejected here and the 2-watt limitation should be deleted. We believe that like PCS, BRS and EBS response stations should be designed to reduce the likelihood of interference with BRS and EBS stations and mobile services in the band. Moreover, compliance with our safety rule necessitates compliance with a 2-watt limit for devices that are normally held close to the user's body. The rules allow higher power levels in circumstances where the response station's transmission antenna is designed to be used at least twenty centimeters away from the body of the user or any nearby persons.

117. IPWireless states that the 2-watt limit should be specified on a per channel basis, as is currently done in Parts 21 and 74, so that when partial or multiple channels are employed, the allowable power level is adjusted as per the main station. Moreover, in regards to customer premises equipment (CPE), IPWireless proposes that the Rule be amended to 2-watts EIRP, which is more restrictive than our current Rules for fixed response stations. IPWireless' proposal would require that all subscriber equipment conform to the power limit established for PCS mobile stations. We agree with IPWireless that the 2-watt EIRP level advocated for CPE is appropriate for mobile and portable station operation in these services. Accordingly, all mobile and portable response stations, including CPE devices, will be limited to 2-watts EIRP assuring compliance with our rules. However, we will not amend our rules regarding BRS and EBS fixed response stations.

118. Finally, in the *NPRM*, we sought comment on whether we should establish a maximum antenna height for response stations in view of our proposal to blanket-license such stations. While mobile or portable stations would typically be close enough to the ground that they would be shielded by nearby structures, we noted in the *NPRM* that the rules we were contemplating adopting for these services would also permit the deployment of response stations at fixed locations, where they could be attached to antennas at high elevations. Such transmitters would have a greater potential for generating unwanted electromagnetic interference. We sought comment on whether the signal strength limits that we propose to apply at GSA boundaries would obviate the need for antenna height limits.

119. Upon reflection, we conclude that we will not establish a maximum antenna height for fixed response stations in this band. IPWireless does not believe that a maximum antenna height for response stations can be enforced, given that response stations are permitted to operate in an

[215] Amendment of the Commission's Rules to Establish New Personal Communications Services, *Second Report and Order*, 8 FCC Rcd 7700, 7764-65 ¶ 156 (1993).

uncoordinated fashion under a blanket license. However, in the event that antenna heights and power height limitations are imposed, IPWireless suggests that the PCS antenna height and power limits contained in Section 24.232 should apply.

120. Our current Rules do not limit the height of fixed response stations, which are typically mounted to the roof-top of most buildings for BRS and EBS stations, and we see no reason to change these rules at this time. Mounting response antennas to the roof-tops of existing buildings or side-mounted to an antenna mask (i.e., FAA approved structures) would be more practical and economical than building a supporting tower structure. Therefore, we believe the vast majority of response antennas will be mounted to the roof-top of typical buildings for economic reasons which would restrict the overall height of the antennas. Moreover, our current Rules have not presented any problems, and we agree with IPWireless that such limits may not be enforceable. Accordingly, we will not establish a maximum antenna height for fixed response stations in this band.

121. *Base/Main Stations.* In the *NPRM*, we noted that there is no specific power limit for low-power base stations, nor are there base station transmitting antenna height limits for operations in this band. In view of our proposal to limit signal strength at the borders of licensees' GSAs, we sought comment on whether there would be any benefit to establishing base station power and antenna height limits. In particular, we sought comment on a Coalition proposal to create incentives, but not an absolute requirement, for licensees to limit the height of low-power base stations near their GSA borders.[216] The Coalition proposal stemmed from its concern that a 47 dBμV/m signal strength limit at GSA boundaries might not provide sufficient protection against interference to base station receivers. The Coalition expressed that the most troublesome scenario would arise when the interfering licensee is using a channel for downstream communications from its base stations, and the interfered-with licensee in a contiguous GSA is using the same channel for upstream communications to its base stations. Under these circumstances, the Coalition recommended a safe-harbor requirement that both licensees limit their antenna heights to $D^2/17$, where D is the distance in kilometers between the base station causing the interference and the point where a line connecting the transmitting base station with the neighboring receiving base station intersects the boundary between their respective GSAs. Pursuant to this approach, antenna height would be defined as the height in meters of the antenna's centerline above the average elevation along the line between the two base stations.[217] If a transmitting licensee's antenna is not within the safe-harbor height limit and the receiving licensee's antenna is within the safe harbor, the transmitting operator would be required to take such measures as are necessary to limit the level of the undesired signal at the receiving base station to -107 dBm or less.[218]

122. In contrast to the Coalition's recommendations, our Broadband PCS rules do not impose any direct limit on antenna heights, but they apply a graduated reduction in permissible EIRP output for base station antennas that are more than 300 meters in height.[219] We noted in the *NPRM* that, on first impression, the Coalition's proposal appeared to lack certainty, insofar as the requirements imposed upon a licensee would be dependent upon actions taken by a neighboring licensee. However, we noted that a licensee could ensure its compliance with the recommended safe harbor, regardless of any future actions taken by the neighboring licensee, by drawing a line intersecting the nearest point on the GSA boundary

[216] *See* Second Supplement to the Coalition Proposal at 3-7, filed Feb. 7, 2003.

[217] *Id.* at 5.

[218] *Id.* at 6.

[219] 47 C.F.R. § 24.232(a).

and assuming that the other licensee might someday site a base station somewhere on that line. The recommended formula could then be applied to determine the maximum safe-harbor height for any given distance from the boundary. We concluded that the safe harbor distance formula proposed by the Coalition would not adversely affect the typical 2-5 mile antenna service distance and 150 to 300 feet height above average terrain (HAAT) of base stations in low-power cellular networks. We also concluded that it would have a minimal effect on typical base station design.

123. We believe that it is premature to impose a limit on antenna heights for low-power base stations given that base stations must comply with the 47 dBμV/m signal strength limit at its GSA boundaries as adopted herein. However, we concur with the Coalition that in line-of-sight situations, it is possible for a station to comply with the 47 dBμV/m signal strength limit at its GSA boundary and cause objectionable interference in an adjacent area at the same time. The Coalition has provided a vehicle for licensees to determine if the heights of their transmitting antennas would cause objectionable interference to a receiver in an adjacent GSA. Its proposal, $D^2/17$, mentioned above, would be a voluntary coordination threshold showing with regards to the heights of base station transmitters that would be located near the GSA boundary of an adjacent licensee. There will be no restrictions on the heights of base station antennas, but in certain situations, interference protection will be required. A base station receive antenna less than or equal to the threshold showing will be protected from a transmitting antenna that exceeds the threshold showing. A base station transmitting antenna equal to or less than the threshold showing is unlikely to cause interference; therefore no protection to any base station receive site will be required from such base stations. Finally, a base station transmitting antenna greater than the threshold would not need to protect a base station receive antenna that exceeds the threshold showing. In view of the fact that the ideal location for a base station antenna is in the center of the geographical area in which it provides service, we believe that the 47 dBμV/m signal strength limitation at the geographical service area boundaries is adequate provided the antenna height of the base station does not exceed the above threshold showing. Accordingly, we will not impose a limitation on the antenna heights of base stations located near the GSA border provided they do not cause impermissible interference.

4. Emission Limits

124. The purpose of emission limits, also known as emission masks, is to provide protection against adjacent channel interference (e.g., restrict transmitter emissions on a range of frequencies removed from the licensee's assigned frequency or frequency band). The current rules governing emission limits for MDS and ITFS are set forth in Sections 21.905 and 74.936, respectively. The current rules are based, however, on high-power video operation and vary slightly between the services.

125. In the *NPRM*, we stated that modification of the rules governing out of band emissions was necessitated by our intention to provide for mobile operation in the band. Consequently, we sought comment on the Coalition's recommendation that we require equipment operating on the LBS and UBS channels (both base stations and stations at a customer's premises) to attenuate the power below the transmitter power (P) by at least $43 + 10\log_{10}(P)$ dB on any frequency outside a licensee's authorized spectrum.[220] This recommendation is the same as the general emission mask the Commission adopted for operations in both the upper and lower 700 MHz band.[221] For the Response (R) channels the Coalition suggested requiring an attenuation of at least $80 + 10\log_{10}(P)$ dB. The Coalition also asserted that additional attenuation may be required in special circumstances. For example, the Coalition stated that the

[220] Coalition Proposal at 29.

[221] *Lower 700 MHz Band R&O*, 17 FCC Rcd at 1070 ¶ 122.

rules should be changed to require a licensee to take steps to attenuate out of band emissions by at least 67 + $10\log_{10}$(P) dB upon written request from an adjacent channel licensee.[222] In response to this suggestion, we noted that we had never required a licensee to reduce its out of band emissions at the request of an adjacent channel licensee. The Coalition also outlined a more restrictive mask for protecting operations on the MBS channels[223] and for licensees of MBS channels to protect operations on LBS and UBS channels.[224] We observed that adopting all the Coalition's recommendations would be inconsistent with our stated goal of simplifying the rules governing this band (e.g., minimize harmful interference without establishing overly burdensome requirements). Nevertheless, we sought comment on whether we should adopt the Coalition's recommendations concerning out of band emissions or different criteria and details on measurement procedures to determine compliance.[225] Further, we sought comment on the appropriate emission mask for mobile operations. In that regard, we noted that we recently adopted out-of-band emission requirements to ancillary terrestrial component (ATC) mobile units in the 2000-2020 MHz band in order to protect adjacent channel PCS operations.[226] Because Mobile Satellite Service (MSS) and ATC units will be operating in the band immediately below 2500 MHz, we sought comment on whether similar limits should apply. We also sought comment on whether any special rules were needed to protect the Earth Exploration Satellite (passive), Radio Astronomy, and Space Research allocations in the 2690-2700 MHz band.[227] Finally, we requested comment on whether we should specify a frequency tolerance or require equipment to maintain its operations fully within the emission mask at all times.

126. After reviewing the record in this proceeding, we now believe that the emission mask proposed by the Coalition for the LBS and UBS reasonably limits adjacent channel interference and maximizes spectral efficiency while remaining technology neutral.[228] We agree with the Coalition which

[222] According to the Coalition's Proposal, the written request must include a certification from the requesting licensee that it intends to initiate service on the affected adjacent channel group at a date certain (not more than one year after the date of the written request), and that the additional attenuation is required due to the respective technical characteristics of the requesting licensee's planned facilities and those of the party receiving the request. The requesting licensee must also include in the written request currently available information regarding its planned network design comparable in scope to the information required to be filed upon completion of the construction of its facilities. *See* Coalition Proposal at 29.

[223] The Coalition states "[i]n addition to the other requirements imposed on *out of band* emissions by stations operating outside the MBS, the licensee of any transmitter operating in the LBS, UBS, I, J, or K channels shall manage its *out of band* emissions such that the noise power introduced into an MBS channel does not exceed an EIRP of -37 dBm without the consent of the affected MBS channel licensee. Notwithstanding the foregoing, if the licensee of a channel outside the MBS digitizes a channel within the MBS, the noise power introduced into that channel of the MBS shall not exceed an EIRP of -20 dBm without the consent of the affected MBS channel licensee." *See* Coalition Proposal at 30.

[224] *See* Coalition Proposal at 16, nn.39, 41.

[225] For example, the Coalition suggests that we measure *out of band* emissions at the outermost edges of the combined channels where two or more contiguous channels are employed in the same system. *See* Coalition Proposal at 29 n.79. *See also* Coalition Proposal at 30 n.81.

[226] Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Bands, IB Docket No. 01-185, *Report and Order and Notice of Proposed Rulemaking*, FCC 03-15, 18 FCC Rcd 1962, 2025-26 ¶ 119 (2003).

[227] *See* 47 C.F.R. § 2.106 n.US246.

[228] As the Commission's Spectrum Policy Task Force has recognized, there is an inherent tension between the dual objectives of affording licensee's flexibility and grouping like systems together; if every licensee is free to choose (continued....)

notes that loose out -of-band emission limits provide perfectly acceptable adjacent channel interference protection when adjacent channel licensees are operating compatible systems, but when adjacent channel systems are not compatible, a more stringent out of band emission limit is necessary to provide an appropriate level of interference protection. The Telecommunications Industry Association (TIA) also supports the Coalition's out-of-band emission limits, which are also imposed in the PCS band. TIA asserts that if flexibility is provided to the licensee to utilize either FDD or TDD, out of band emissions will have to be reduced to a level that will provide reasonable protection to an adjacent channel licensee. TIA further argues that the dual mask approach proposed by the Coalition restricts out-of-band emissions and mitigates potential adjacent channel interference where non-synchronized technologies are deployed.

127. We also agree with the Coalition that equipment on the LBS and UBS channels (both base stations and stations at a customer's premise) should be required to attenuate the power on any frequency outside a licensee's authorized spectrum.[229] Accordingly, we are adopting the Coalition's recommendation that all LBS and UBS channels emissions be attenuated below the transmitter power by at least 43 + 10log(P) dB on any channel outside a licensee's spectrum. We note that this is the same as the general emission mask the Commission adopted for operations on PCS, the 700 MHz band and other services.

128. We note TIA's concerns that requesting more stringent out of band emissions from an adjacent channel licensee, upon written request, is an unworkable solution for further reduction in out-of-band emissions. However, we believe that is appropriate to allow licensees to request stricter out-of-band emission limitations when there is a documented case of interference caused by out-of-band emissions between base stations. We believe that requiring the requesting licensee to document its interference claims will ensure that such requests will address real problems and avoid specious requests. Therefore, the Commission will require a licensee, upon receiving a documented interference complaint from an adjacent channel licensee, to further reduce its out-of-band emissions by at least 67 + 10log(P) dB. We also agree with the Coalition that additional attenuation should be required where base stations are located in close proximity. So we will require additional attenuation when distances between base station are less than 1.5 km. Finally, we also agree with the Coalition's mobile station emission mask which extends the attenuation from 43 + 10lop(P) at the channel's edge to 55 +10log(P) at 5.5 MHz away from the channel's edge.

129. With respect to BRS channel 1, we clarify that adjacent-channel Mobile Satellite Service (MSS) licensees can seek tighter out-of-band emissions limitations on licensees operating on Channel 1 in cases of documented interference. There may be situations where a tighter out-of-band emissions limit is necessary to protect MSS operations below 2495 MHz. MSS licensees operating in the adjacent band will be able to request such additional protection under the same circumstances as adjacent-channel BRS and EBS licensees.[230]

130. With respect to the MBS, we will allow analog television operations to operate pursuant to the existing out-of-band emission limitations currently in our rules. With respect to other operations, we will apply the same rules we are adopting for the LBS and UBS. We note that the Coalition requested

(Continued from previous page)
the services it will offer and the technology it will employ, the Commission cannot possibly assure that technically-disparate systems will be separated.

[229] Coalition Proposal at 29.

[230] Given the difficulties involved in measuring satellite signals, which can operate at very low-power, we will not require MSS licensees seeking adjacent-channel protection to provide actual measurements of satellite signal levels.

no changes in the out-of-band emission limits for the MBS.[231] However, we believe that the rules we are adopting are more workable than the current rules and will provide sufficient protection to existing operations. Moreover, applying the same emission limitations for digital operations throughout the band will encourage the use of common equipment throughout the band, particularly in those areas where cellularized networks can operate in the MBS without interference from high-power operations.

5. Technology

131. In the *NPRM*, we sought comment on the Coalition's request that we not restrict operation in this band to a particular technology and its assertion that our rules should remain technology-neutral to the maximum extent possible.[232] We noted that the Coalition also raised the issue that second-generation equipment employs two different technologies – FDD and TDD -- and that FDD technology requires a separation between the highest frequency used in one direction and the lowest frequency used in the other direction.[233] Thus, to allow for FDD technology, the Coalition proposed that when this technology is employed by a licensee, the LBS be restricted to subscriber-to-base (upstream) communications and the UBS be restricted to base-to-subscriber (downstream communications). According to the Coalition, this framework would simplify adjacent channel coordination and provide the vendor community with a degree of certainty as to the band usage that will translate into lower equipment costs and smaller equipment. We sought comment on whether we should establish formal channel pairings in the form of fixed channel assignments (FCA) to standardize the separation between channels used upstream and downstream.

132. We agree with the Coalition and the overwhelming majority of Commenters who argue that the band should be technology neutral. Allowing the band to be technology neutral is consistent with our goal to make the spectrum as flexible as possible as it permits licensees and the marketplace to determine which technologies should be utilized. As noted by Gryphon, Earthlink, Sprint, and Twedt and Dudeck, not restricting the band to a particular technology allows licensees and systems operators to deploy either FDD or TDD technology, and freely switch between the two as the technology develops and the marketplace demands evolve. Moreover, as noted by Alvarion, technologies such as next generation FDD and TDD would not thrive in a regulatory environment that restricts flexibility and mandates one technology over another.

133. We disagree with Fixed Wireless Holdings' approach which locks in the technology choice made at the time of licensing. To support its position, Fixed Wireless Holdings points to the Coalition's acknowledgement that both FDD and TDD systems on the same frequencies "creates a heightened risk of co-channel interference." However, we agree with Twedt and Dudeck that the current Rules would allow ITFS or MDS operators to safely use either FDD or TDD technology. Providing users with the flexibility to deploy the technologies of their choice is consistent with the Commission's goal of allowing licensees to operate technology independent. Accordingly, we will not mandate any particular technology in the band.

134. Additionally, we conclude that in order to allow the spectrum to be technology-neutral to

[231] Coalition Proposal at 39.

[232] Coalition Proposal at 11, 15.

[233] The Coalition points out that the Commission's *Interim Report* stated that a separation of at least 30 megahertz between upstream (customer to base) and downstream (base to customer) transmissions is needed to provide sufficient isolation of signals in the duplexer. *See* Coalition Proposal at 16. *See also Interim Report* at 54.

the maximum extent possible, channels utilized for FDD in this spectrum will not be paired by fixed channel assignments. Rather, upstream FDD operations will be permitted in the LBS, and paired with channels in the UBS for downstream communications by dynamic channel assignment (DCA). Channels that are DCA paired select any unused channel in the LBS for upstream operation, which eliminate manual channel pairing, thus promoting more flexibility and an efficient use of the spectrum. We are not, therefore, adopting a requirement for the LBS to be used only for remote, response or mobile station transmissions or for the UBS to be used only for base or main station transmissions. However, this does not preclude the industry from adopting its own standard.[234] An operator is free to use TDD in either the LBS or the UBS. Thus, FDD technology will be used in this spectrum without a priori pairing.

6. Unlicensed "Underlay" Operation

135. As we have consistently noted, one of the underlying goals of this proceeding is to promote increased access to spectrum. In this regard, we noted in the *NPRM* that Intel and Microsoft advocated that we create, or at least preserve, the opportunity to create unlicensed "underlay" rights for very low-powered devices on these channels.[235] Recently, we issued a Notice of Inquiry concerning making additional spectrum available for use by unlicensed devices in the television bands and in the 3650-3700 MHz band.[236] In the Unlicensed NOI, we noted that there have been significant advances in technology that may make it feasible to design new types of unlicensed equipment that would not cause interference to existing services.[237] For example, equipment could be designed that could monitor spectrum before transmitting to avoid interference, or equipment could be designed that could use the Global Positioning System to determine its location and whether there are licensed operators in the area.[238] We also noted that allowing unlicensed operation with minimal technical requirements could potentially permit the development of new and innovative types of devices, such as new wireless data networks.[239]

136. In the *NPRM*, we stated that the proximity of the 2500-2690 MHz band to successful unlicensed technologies in the 2.4 GHz band, and our goal of increasing the intensiveness and efficiency of use of the 2500-2655 MHz band, suggests that it may be appropriate to consider enhancing unlicensed use in the band on a secondary, non-interference basis. While we recognized that unlicensed operations under our Part 15 rules are subject to the condition that the transmitter does not cause interference to authorized services, we stated that we were nonetheless mindful in this context that additional measures may be necessary to ensure that unlicensed operations would not cause interference to existing, licensed operations. In that regard, we noted WCA's belief that Microsoft and Intel's proposals were premature. WCA contended that the necessary technology for mass producing affordable devices capable of measuring and reliably adapting to the presence of background noise or "interference temperature" had not been demonstrated.[240]

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[234] All stations, regardless of their use, must comply with the emissions standard specified for LBS and UBS. *See* Appendix C, Section 27.53, Emission Limits.

[235] Intel Reply Comments in RM-10586, at 5; Microsoft Reply Comments in RM-10586, at 3-4.

[236] Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band, ET Docket No. 02-380, *Notice of Inquiry*, 17 FCC Rcd 25632 (2002) ("*Unlicensed NOI*").

[237] *Id.* at 25637 ¶ 13.

[238] *Id.*

[239] *Id.* at 25642 ¶ 21.

[240] Coalition Comments in ET Docket No. 02-135, at 10.

137. Based on our discussions in the Unlicensed NOI and the advent of emerging technologies enhancing the feasibility of unlicensed operations, we sought in the *NPRM* comment on the possibility of allowing enhanced unlicensed operations in the 2500-2690 MHz band. Additionally, we sought comment on technical rules that would permit such operations without interfering with primary operations, such as any restrictions on antenna gain or directivity that might be necessary.[241] Furthermore, we sought comment on whether it is feasible to manufacture affordable transceivers that are capable of using underlay rights where, and only where, such access is offered if some but not all licensees on a given channel allow underlay access. Noting that Part 15 transmitters may not operate in certain restricted bands, including 2655-2690 MHz,[242] we asked whether there were any circumstances under which unlicensed operation could be allowed in the 2655-2690 MHz band without adversely affecting passive sensing operations in the 2655-2700 MHz band.

138. Based upon our review of the record, we decline to permit high-power unlicensed operations in the spectrum at this time. We are not necessarily convinced by Motorola's and Sprint's arguments that high-power unlicensed operations would introduce new sources of interference and create a more uncertain interference environment at the expense of licensees in the band seeking to deploy new services.[243] However, given the complex transition we are undertaking in this band, we believe that allowing high-power unlicensed operations in this band could add an additional layer of complexity that could delay deployment in this band by licensed operators. We are also concerned by the Coalition's assertion that allowing unlicensed use of this spectrum could undermine the evolution of the modified band plan, and BellSouth's related comment that because the current state of unlicensed technology does not permit responsible implementation of unlicensed devices in the spectrum, the uncertainty and novelty of unlicensed use would trouble investors, making them less likely to invest in the band.[244] We note that NAF and a series of other Commenters in favor of allowing unlicensed operations did not provide sufficient scientific evidence in support of their position. Moreover, NAF did not submit sufficient evidence to support its claim that unlicensed underlay operations can be operated on a primary basis without causing interference within the spectrum. Furthermore, we believe that the issue of high-power unlicensed operation can and should be considered in the broader context of other proceedings addressing unlicensed operation. Therefore, we decline to permit unlicensed operations in the band except as indicated above and to the extent already permitted by Part 15 of our Rules.

139. However, we will lift the restriction on unlicensed operation in Section 15.205 of our Rules and permit low-power unlicensed devices to operate on frequencies 2655-2690 MHz under our current Part 15 rules. Given the existence of licensed services in this frequency band, and given the ability of licensed operation to co-exist with unlicensed operations in the 2500-2655 MHz band, we see no reason to maintain this restriction in this band.

7. RF Safety

140. The Coalition's proposal for revisions to the 2500-2690 MHz band includes a recommendation that we amend our RF Safety rules. More specifically, the Coalition contends that we

[241] *NPRM*, 18 FCC Rcd at 6781-6782 ¶ ¶ 143-148.

[242] 47 C.F.R. § 15.205.

[243] Motorola Comments at 3-4; Sprint Comments at 9.

[244] Coalition Comments at 67-68; BellSouth Comments at 26.

should amend Sections 1.1307(b)(2), 2.1091(c) and 2.1093(c)[245] to include MDS and ITFS services.[246] These Rules were enacted pursuant to the National Environmental Policy Act in order to assure the protection of human health and safety from radio frequency radiation exposure. The Commission considers RF safety procedures to be essential in protecting human beings from excessive exposure to RF energy.[247] Accordingly, we sought comment on whether and how we should amend the RF safety rules but received little comments on this issue. We agree with the Coalition that Sections 1.1307(b)(2), 2.1091(c) and 2.1093(c) of our Rules should be amended to include MDS and ITFS services. We believe that equipment in this spectrum as in other areas of the spectrum should provide RF safety to consumers. Therefore, applications for equipment operating under this service must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Accordingly, we are amending those sections of the Rules to allow mobile/portable devices in the band.

8. North American Datum (NAD) 83 Coordinate Data

141. Our rules require the submission of different coordinate data for licensing actions. Applicants submit coordinate data using NAD83 protocol for applications filed on FCC Form 331 but in NAD27 for all other MDS/ITFS forms. In the *NPRM*, we sought comment on the Coalition's proposal that we require applicants to use NAD83 coordinate data and update or convert the current database.[248] We further noted that applications filed through ULS are required to provide NAD83 coordinate data. Inasmuch as applications for this service will be processed through ULS, we conclude that these applications should likewise provide NAD83 coordinate data. We agree with the Coalition that the coordinate information in our ULS database should be consistent. Accordingly, we adopt the Coalition's proposal and will require all future applicants filing BRS/EBS applications to submit coordinate data based on NAD83 coordinate data to facilitate ULS processing. Therefore, all applications filed after the effective date of these rules are required to contain coordinate data based on NAD83 coordinate data.

9. BRS Response Station Hubs

142. Our existing rules regard hubs in the same manner as main stations for application processing purposes. For instance, whereas 47 C.F.R. Section 1.1104 contains a special section on the application fee for signal booster applications and for signal booster certification of completion of construction applications ($70.00 in each instance), the rules do not differentiate between requirements for main station applications and certifications and response station hub applications and certifications. At present, the fee for a response station hub on a Form 331 is $210.00, and the fee for the Form 304A is $610.00.[249] Section 21.909 states that an MDS response station hub application must be filed on a Form 331. Licensees of MDS response station hubs must also file a certification of completion of construction application.[250] Response station hubs, signal booster stations and R channels are considered stand-alone

[245] *See* 47 C.F.R. §§ 1.1307(b) (2), 2.1091(c) and 2.1093(c).

[246] *See* Coalition Proposal at 20, nn.26 and 51.

[247] The existing requirements are located in 47 C.F.R. §§ 1.1307(b), 1.1310, 2.1091 and 2.1093.

[248] Coalition Proposal at 56.

[249] *See* 47 C.F.R. §§ 1.1104 and 21.909(c)(1).

[250] 47 C.F.R. § 21.909(h)(i)(2).

stations, and thus have unique facility ID numbers separate from the associated main stations.[251] However, at this time, only signal booster stations are designated for special treatment in the application fee schedule. We do not believe that certifications of completion of construction of two-way hubs will be necessary under the GSA licensing approach that we adopt herein, and accordingly eliminate such filing requirements.

10. Radiation from Stations that are not Engaged in Communications

143. On September 25, 1998, the Commission amended its rules to allow MDS and ITFS licensees to provide a wide range of high-speed, two-way services to a variety of users.[252] On July 29, 1999, the Commission made some additional rule modifications to facilitate the provision of these services.[253] On December 22, 1999, IPWireless requested reconsideration of the Commission's out of band emission limitations.[254] On February 10, 2000, a group of over 100 wireless communications system operators, Commission licensees, equipment manufacturers and consultants who were parties to the Petition for Rulemaking that commenced the Two-Way Proceeding (collectively, Petitioners) did not oppose IPWireless' petition, but sought clarification of Sections 21.909(m) and 74.939(o) of our Rules.[255] The Petitioners indicated that there was some uncertainty within the industry as to the meaning of the language, "Radiation of an un-modulated carrier and other unnecessary transmissions are forbidden."[256]

144. The Petitioners requested clarification that this language requires a response station's transmitter to be biased off so that no RF Gaussian noise is emitted when the station is not engaged in communications.[257] The Petitioners argued that this interpretation assures the protection of the noise floor of adjacent channel and adjacent market licensees against unnecessary emissions from transceivers.[258] On May 11, 2000, the Petitioners and IPWireless notified the Commission that they had reached a compromise concerning the appropriate level of emissions that a response station may generate when not directly engaged in communications with a response hub.

145. The Petitioners and IPWireless requested amendment of Sections 21.909(m) and 74.939(o) of our Rules to provide that when a response station is not in communications with its associated hub, it must restrict its field strength.[259] First, they proposed to set the permissible level of RF

[251] *See* Mass Media Bureau Multipoint Distribution Service and Instructional Television Fixed Service Applications Tendered For Filing, Report No. 148, *Public Notice* (Nov. 29, 2000).

[252] *Two-Way R&O*, 13 FCC Rcd at 19112.

[253] Amendment of Parts 1, 21 and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions, *Report and Order on Reconsideration*, 14 FCC Rcd 12764 (1999) (*Two-Way R&O on Recon*).

[254] IPWireless, Inc. Petition for Reconsideration, filed Dec. 22, 1999.

[255] Petitioners' Consolidated Comments and Partial Opposition at 5 (Consolidated Comments) filed Feb. 10, 2000. Although the Commission inadvertently indicated that WCA requested clarification, we take this opportunity to correct the record to reflect that the Petitioners requested clarification of this issue. *See Two-Way FNPRM*, 15 FCC Rcd at 14576.

[256] Petitioners' Consolidated Comments at 6.

[257] *Id.*

[258] *Id.*

[259] *Id.* at 1.

Gaussian noise at 10 microvolts/meter per 1 MHz bandwidth at a distance of 3 meters for response stations utilizing antennas with 6 dB or less gain over isotropic. Second, they proposed to set the permissible level of RF Gaussian noise at 10 microvolts/meter x 10exp[(antenna gain - 6 dB) / 20] per 1 MHz bandwidth at a distance of 3 meters for stations utilizing antennas with more than 6 dB gain over isotropic.[260]

146. In the *NPRM*, the Commission agreed to clarify this issue and sought comment[261] on specific issues relating to this matter.[262] Additionally, we sought comment on comprehensive changes to the interference rules that would apply in these services. Noting that other services do not have similar requirements, we asked Commenters who supported imposition of such a requirement to explain the need for such a requirement in light of other changes we proposed to our technical rules.

147. IPWireless now states that its original proposal to amend Sections 21.909(m) and 74.739(o) of the Rules is no longer appropriate. IPWireless explains that its proposal stemmed from the fact that MDS/ITFS licensees were concerned that TDD devices might be prone to transmitting energy during periods of reception. The Coalition supported IPWireless' proposal arguing that absent the adoption of the restrictions on emissions by subscriber units when not engaged in communications with their base stations, interference may result. Subsequently, however, IPWireless has completed more than two years of field trials and commercial deployment of TDD equipment and has obtained FCC certification for several types of base stations and CPE devices. IPWireless' studies led it to conclude that TDD devices are not a potential source of interference as envisioned by MDS and ITFS Petitioners at the time its petition was filed. We are persuaded by IPWireless' extensive studies and findings on this issue, which are further buttressed by the fact that IPWireless has obtained FCC certification for several types of base stations and CPE devices. Thus, we agree with IPWireless that amending Sections 21.909(m) and 74.739(o) of the Rules is not necessary, and the applicable rules will not be amended.

148. In a related matter, we also sought comment on whether we should prohibit subscriber handsets (CPE) from transmitting unless a base station pilot is present, and whether such a rule was necessary in order to avoid interference to existing operations. IPWireless supports our proposal prohibiting CPEs from transmitting unless a base station pilot is present. Moreover, IPWireless states that CPE transmissions must be restricted to locations where the blanket-license devices are operating under the active control and supervision of a licensed base station. We agree with IPWireless that handsets should not transmit unless a base station pilot is present, and that such transmissions must be restricted to locations under the active control and supervision of a licensed base station. Moreover, we believe that handsets should not transmit unless a base station pilot tone is present to preclude any unnecessary radiation "noise" in the spectrum. Accordingly, we will prohibit subscriber handsets from transmitting unless a base station pilot is present.

C. Eligibility Restrictions

1. ITFS Eligibility Restrictions

149. *Background.* The ITFS service was established to provide formal educational and cultural development in aural and visual form to students enrolled in accredited public and private

[260] *Id.*

[261] *Two-Way FNPRM*, 15 FCC Rcd at 14576.

[262] *Id.* at 14576-7 ¶¶ 39-40.

schools, colleges and universities.[263] Our current rules limit eligibility for the 114 megahertz of ITFS spectrum in the 2500-2690 MHz band to: (1) accredited educational institutions, (2) governmental organizations engaged in the formal education of enrolled students, and (3) nonprofit organizations whose purposes are organizational and include providing educational and educational television materials to accredited institutions and governmental organizations.[264]

150. In the *NPRM*, we included a detailed discussion and history demonstrating how, over a fifteen year period, the Commission has progressively relaxed the educational content obligations of ITFS licensees to accommodate the flexibility needs of ITFS providers who have increasingly relied on the leasing revenues provided by commercial spectrum users. As a result, the Commission's ITFS leasing policies now allow ITFS licensees to lease all but a small fraction of their capacity to commercial operators. From 1983 through 1998, the Commission progressively reduced the educational content required of ITFS licensees while expanding the opportunities for ITFS licensees to generate income by leasing out their channels, and substantially increased MDS operators' access to ITFS spectrum. These actions were taken in an effort to encourage more intensive use of the spectrum and to facilitate the generation of revenue for ITFS licensees.

151. In the *NPRM*, we stated that recent events warranted re-examination of the ITFS eligibility restrictions. We noted, for example, that in recent years, the Commission has pursued a general policy of eliminating use restrictions in radio licenses except in circumstances where there are clear and compelling reasons for retaining them.[265] We also noted the increased use of ITFS spectrum capacity by MDS systems as a result of the Commission's liberalization of leasing rules and relaxation of educational content requirements.[266] We also noted the increasing use of the Internet for educational purposes, which appeared to offer comparable and perhaps superior means of delivering educational programming.[267] Moreover, we expressed concern that retention of the ITFS eligibility restrictions could be detrimental to the growth of services on ITFS channels, because the complexity of the contractual relationships that our rules require in the ITFS service might discourage investment and impair the ability of service providers to modify their operations in response to changing technology and market conditions. We further noted that innovation could proceed more smoothly if commercial operators were able to aggregate spectrum in the 2500-2690 MHz band and purchase ITFS facilities, which would allow them to exercise direct ownership control. We suggested that providing existing ITFS licensees with greater flexibility might permit such licensees to capture the increased value of their spectrum, which would yield resources that could be used to enhance their educational programs in the manner that best suited their individual needs. In light of all these concerns, we sought comment on whether we should retain the ITFS eligibility restrictions. Additionally, we sought comment on maintaining ITFS as a separate service requiring educational programming but modifying the eligibility requirements to allow for-profit companies to be eligible licensees. Finally, we invited comment on whether we should eliminate or otherwise change our existing ITFS instructional content origination rules.

[263] 47 C.F.R. § 74.931(a)(1).

[264] *See* 47 C.F.R. § 74.932(a). Under certain circumstances, "wireless cable entities" may obtain access to ITFS channels so long as at least eight other ITFS channels remain available for future ITFS use. *See* 47 C.F.R. §§ 74.990-74.992. In the *FNPRM* portion of this document, we are seeking comment on whether we should retain this restriction. *See* section V.E , *supra*.

[265] *NPRM*, 18 FCC Rcd at 6769 ¶ 111.

[266] 47 C.F.R. § 74.931(d)(1).

[267] *NPRM*, 18 FCC Rcd at 6770 ¶ 114.

152. *Discussion.* After considerable deliberation, we conclude that it is in the public interest to retain EBS eligibility and content restrictions. We believe that the public interest favors preserving this spectrum for licensing to ITFS-eligible entities and that doing so will further the educational objectives that led to the establishment of ITFS. The record demonstrates that the EBS service provides critical educational services such as web-based and streaming video for instruction in adult literacy and basic skills, emergency medical and fire services, law enforcement, and corrections. These services are often provided by community colleges at a variety of locations across the state where such instruction would generally be unavailable.[268] The record also demonstrates that ITFS is used to provide training for citizens whose employment opportunities are limited by the closing of manufacturing plants and continued reduction in agricultural employment. Some EBS services, such as Mississippi Ednet's project with the Mississippi State Department of Health that will connect two hundred hospitals and health departments will even contribute to homeland security.[269]

153. Some commenters argue that important public interest objectives would be fulfilled if ITFS eligibility restrictions were eliminated. For example, BellSouth asserts that under a flexible use approach, licensees of ITFS spectrum may offer services other than fixed broadband and innovators can develop new, spectrally efficient technologies and offer new services in competition with fixed and portable operators.[270] BellSouth further asserts that open eligibility rules would facilitate development of Secondary Markets when DSL providers like it introduce advanced services to areas where wired DSL and cable modem services are not available, and provide facilities-based competition and competitive choice in areas where service is available.[271] Similarly, Network for Instructional Television (NITV) contends that open eligibility will stimulate private investment in new technologies that the education community has neither the budget nor the expertise to bring to the market unilaterally.[272]

154. We agree with BellSouth and NITV that these are all very important public interest objectives, and in particular, that leveraging the potential for wireless technology in the 2496-2690 MHz band to benefit education requires the private sector's investments and expertise. Nonetheless, we also believe that these goals can be attained notwithstanding existing eligibility restrictions. In this regard, we note that investment in the band is not solely dependent on an open eligibility scheme, and our restructuring of the band will go a long way towards encouraging the necessary investments. For example, as discussed earlier, the interleaved band plan has played a significant role in discouraging investment and hampering service. Inasmuch as licensees will now enjoy a band plan that provides contiguous spectrum, a significant obstacle to innovation in broadband deployment has now been rectified, and this enhancement alone will lead to significant changes in the utilization of this spectrum. Of particular importance is that the record does not demonstrate that commercial ownership of ITFS spectrum is a prerequisite to stimulating investment in the band. Indeed, as IMWED points out, that the bulk of commercial entities submitting comments to the *NPRM* did not take a position on ITFS eligibility demonstrates that lifting eligibility restrictions would not have a significant impact on commercial development of the band.[273] Moreover, over the course of this proceeding, several large commercial

[268] NCCCS Reply Comments at 2.

[269] Mississippi Ednet Reply Comments at 8-9.

[270] BellSouth Comments at 23.

[271] BellSouth Comments at 23-24.

[272] Network for Instructional Television (NITV) Reply Comments at 3-4.

[273] IMWED Reply Comments at 8.

providers such as Clearwire and Nextel have acquired rights to spectrum and developed plans to establish broadband services in this spectrum, even notwithstanding the possibility that ITFS eligibility restrictions would be retained.[274] Therefore, we are not convinced that innovation in the band will be stifled by the continued retention of ITFS eligibility restrictions.

155. A number of ITFS licensees, such as IIT, disagree with assertions made by some commenters that actual educational use of the ITFS band is minimal.[275] IIT states that there are active ITFS operations in all of the top 50 TV markets, its use is robust, and educational institutions have deployed these frequencies for their intended use.[276] Furthermore, IIT asserts that notwithstanding the five percent minimum capacity rule, the majority of ITFS licensees who lease excess capacity retain at least 20 hours per week per channel and regularly reserve at least 25% of "total" capacity for ITFS use.[277] The Catholic Television Network (CTN) and the National ITFS Association (NIA) likewise assert that many ITFS licensees reserve amounts greater than the requisite 5% for their own use, while some do not lease any capacity on their ITFS stations.[278] During the course of this proceeding, a number of EBS licensees have submitted filings or made ex parte presentations to the Commission detailing the robust and critical educational applications they deliver to the public via their EBS spectrum.[279]

156. We recognize that there are a number of ITFS licensees, including some major educational institutions, who use the band more intensively for educational purposes than the rules require, and than other ITFS licensees in general. Because these commenters represent a small proportion of actual ITFS licensees, we must also acknowledge that overall utilization of the EBS spectrum is not optimal at this time. Our records indicate that there are 2,760 active, unexpired EBS licenses and permits (including hub and booster stations), or an average of approximately fifty-five facilities in each state. Given the large number of ITFS licensees, the record does not demonstrate that the ITFS community as a whole is making extensive use of the 114 megahertz allocated to them for educational programming. Nonetheless, we are reluctant to penalize the ITFS licensees who make extensive use of this spectrum and find that such action would be inconsistent with our conclusions on the importance of ITFS to the educational mission. Moreover, we recognize that ITFS entities could legitimately argue that they should have an opportunity to operate under the rules we have adopted today. For years, the band has been plagued by instability, uncertainty, filing freezes and burdensome rules, all of which have played substantial roles in fostering uncertainty and stagnation in the band. Ending the ITFS service without having given licensees the benefit of a stable regulatory environment would neither be fair nor in the public interest. We believe the better approach, and one which has been long overdue, is to provide licensees with a stable regulatory scheme thereby providing them the opportunity for their operations to flourish. We are optimistic that the sweeping changes we make today will ultimately result in significant improvements in the utilization of ITFS spectrum. We encourage ITFS licensees to make the most of these improvements by efficiently utilizing this spectrum, and intend to monitor the progress in this

[274] Clearwire Ex Parte (filed May 28, 2004); Nextel Reply Comments at 4.

[275] IIT Comments at 5.

[276] IIT Comments at 8-9.

[277] IIT Comments at 10-11.

[278] CTN & NIA Comments at 10.

[279] *See, e.g.*, Huntsville City Schools Reply Comments at 1; Archdiocese of New York Comments at Attachment A; SBBC Comments at 2-5; IIT Comments at 5-8; ITFS Parties Comments at Appendix.

spectrum by means of the Bureau's periodic transition reports.[280]

157. In a related matter, we agree with CTN and NIA's argument that trends such as increased leasing of ITFS capacity to commercial entities do not justify eliminating ITFS eligibility restrictions.[281] As these commenters correctly point out, EBS is the only spectrum specifically set aside by the Commission for use by educators.[282] Furthermore, it is well established that revenue from leasing to commercial interests has, in many instances, effectively funded and financed ITFS buildout and operations. The Commission has always considered the leasing of excess capacity a legitimate source of funding for the educational mission, and has taken numerous steps over the years to facilitate and encourage these secondary market transactions.[283]

158. We recognize that educational programming is now available over the Internet, and the public is increasingly using the Internet to receive college courses or services of for-profit corporations that provide educational programming.[284] Indeed, the internet offers interesting educational possibilities in light of the fact that its ability to deliver media-rich content is improving rapidly.[285] In response to this data, some ITFS providers such as IIT, state the nature and quality of Internet education programming, which includes streamed-video windows typically covering only a quarter of the PC screen, is vastly different from ITFS programming, which includes full motion video of the instructor, screens of detailed materials, demonstrations in video, graphics and animation in real-time.[286] IIT and other ITFS licensees ultimately concede that the Internet offers interesting potential as an alternate delivery means, but stand firm in their belief that the time for internet conversion has not yet or may never arrive. As time progresses, we expect that many ITFS services will convert to internet or other low-power cellular means of delivery. However, regardless of whether the internet can technologically replace ITFS operations at this time, we agree with IIT and other ITFS commenters who assert that administrative issues such as planning and infrastructure purchases preclude a complete shift from ITFS as the primary mode of delivery at this time.[287] Moreover, other commenters point out that the Internet is an adjunct to, as opposed to a replacement for, their ITFS operations.[288] Inasmuch as relying on internet or other low-power conversion to deliver ITFS services at this time could result in the immediate immobilization of critical ITFS programming, we find it is not in the public interest to remove eligibility restrictions in reliance on internet replacement of ITFS at this time.

159. We recognize that our decision today may, at the outset, appear to digress from the Commission's policy goal, as expressed in the Spectrum Policy Statement, of eliminating eligibility

[280] See para. 103, *supra*.

[281] CTN & NTIA Comments at 8.

[282] CTN & NTIA Comments at 3-4.

[283] *See NPRM*, 18 FCC Rcd at 6765-68 ¶¶ 108-109.

[284] Jared Bleak, *Educated by the Market: A Researcher's Look at Educational Entrepreneurialism* (Harvard Graduate School of Education, Oct. 5, 2001) http://www.gse.harvard.edu/news/features/market10052001.html).

[285] *Id.*

[286] IIT Comments at 13.

[287] IIT Comments at 15.

[288] *See* GMUIF Reply Comments at 3; IIT Comments at 13-15.

restrictions. However, we believe that a public interest exception to our general trend is warranted in the instant case. Of particular importance is the fact that ITFS is the only spectrum specifically reserved for educators. In an open market, we are concerned that educators could not effectively compete against broader commercial interests. Indeed, pursuant to an open eligibility scheme, the inability to bid against commercial operators for this spectrum would effectively deny educators any future entry strategy into the band. This reality, coupled with the importance of ITFS to the educational mission, creates a strong justification for retaining eligibility restrictions in the ITFS band.

160. Additionally, we believe that the objectives accomplished by eliminating eligibility restrictions can still be attained notwithstanding ITFS eligibility restrictions. In this connection, we note that the Commission's trend towards eliminating eligibility restrictions is driven by its general belief that market forces should generally be allowed to operate without being restricted by government because they will tend to push the use of radio licenses to their highest valued applications.[289] Here, we reject the view that the Commission's public interest goal of moving spectrum to its highest-valued use conflicts with the goal of promoting education. We believe that our actions today will instead promote both goals because the restrictions on eligibility here will not impede market forces. That is, our ITFS leasing and secondary market rules for spectrum leasing arrangements are sufficiently flexible to allow market forces to push the ITFS spectrum towards its highest valued use, and educators will continue to enjoy considerable flexibility to lease their excess capacity spectrum. Further, educators can enter into partnerships with commercial interests to improve the capacity and efficiency of their systems, which in turn could free up more spectrum for commercial operators to work towards the development of ubiquitous broadband.

161. In the *NPRM*, we expressed concern that the complexity of the contractual relationships that our current ITFS rules require may discourage investment and impair the ability of service providers to modify their operations in response to changing technology and market conditions.[290] We noted, for example, that an MDS operator who wants to change from providing one-way, high-powered television transmission operations from a single tower to providing two-way Internet access from multiple low-powered base stations must gain the consent of the ITFS operators in the market, even though the MDS operator may already have a leasing agreement with the ITFS licensee. While we must acknowledge that regulatory hurdles to innovation generally remain a prime concern, we do not believe that the eligibility rules will hinder the development of the band. Indeed, the additional flexibility we have provided with respect to spectrum leasing, and the other steps we have taken herein to maximize flexibility, should allow ITFS licensees to develop innovative educational systems and enter into partnerships with commercial carriers.

162. We agree with commenters that ITFS licensees who do not wish to use their facilities should be limited to selling their facilities to other educational organizations or non-profit educational organizations.[291] Although some commenters expressed concern that retaining eligibility restrictions would result in having spectrum lie fallow, as previously indicated, we believe that the sweeping changes made herein will promote the full utilization of the spectrum. Of particular concern to the Commission is the fact that open eligibility would mean that educational institutions and not-for-profit educational organizations that are interested in obtaining licenses will have to compete with a broader range of entities, including for-profit corporations, for future access to spectrum in the band. The challenges that

[289] *2000 Spectrum Policy Statement*, 15 FCC Rcd at 24178.

[290] *NPRM*, 18 FCC Rcd at 6770 ¶ 115.

[291] *See* IMWED Reply Comments at 6-7; CTN & NIA Reply Comments at 6; SBBC Reply Comments at 2.

educational institutions and organizations would face in obtaining access to the remaining ITFS white space would have been likely to serve as permanent barriers to their ability to acquire spectrum in this band.

163. In the *NPRM*, we sought comment on maintaining ITFS as a separate service requiring educational programming but modifying the eligibility requirements to allow for-profit companies to be eligible licensees. We noted, for example, that one possible change could be to apply to ITFS channels public interest obligations comparable to those that apply to DBS under Section 100.5 of our rules.[292] NTCA favors this approach, asserting that commercial operators should be permitted to acquire the spectrum, meet any educational requirements and use the excess capacity to meet the needs of the rural consumers.[293] Similarly, NITV urges that the Commission require that 5% of the capacity of a digital system be made available by commercial ITFS spectrum holders free to non-profit educational organizations and institutions for use in fulfilling their educational mission. With the exception of these two commenters, however, other commenters generally did not express interest in this approach. Rather, the comments largely focused on whether for-profit companies should be eligible licensees generally. Furthermore, in an ex parte presentation, ITFS licensees expressed their belief that it was in the best interest of education for educators to actually retain control of their ITFS spectrum. The lack of support for this approach generally coupled with the fact that this model already exists in the context of DBS persuades us that this approach is neither desirable nor necessary.

164. We take this opportunity to rename the Instructional Television Fixed Service as the Educational Broadband Service. In light of the fact that the service is not limited to either video or fixed services, we believe that it is appropriate to update the name of the service. While we understand that video-based services will continue to operate in the new EBS, we believe that the EBS name better describes the contemplated future use of the band. The change in the name of the service does not affect the substantive rights of current ITFS licensees, permittees, and applicants.

2. MDS/ITFS Cross Ownership Restrictions

165. *Background.* Section 613 of the Communications Act forbids cable operators from holding a MMDS license in any portion of the franchise area served by that cable operator's cable system. In the *NPRM*, the Commission sought comment on how Section 613's cable cross-ownership restriction applies to broadband internet access service, particularly in light of the legislative history of Section 613 and the fundamental change to the nature of MDS service caused when MDS licensees were permitted to construct systems capable of providing such broadband service.[294] We asked whether allowing cable operators to acquire MDS/ITFS licenses would have a significant effect on concentration in video markets,[295] and also whether allowing cable operators or DSL providers to acquire MDS/ITFS spectrum

[292] DBS operators must reserve four percent of their channel capacity for use by qualified programmers for noncommercial programming of an educational or informational nature. *See* 47 C.F.R. § 100.5.

[293] NTCA Comments at 4.

[294] *See NPRM*, 18 FCC Rcd at 6776 ¶ 126. The *NPRM* also sought comment concerning mobile phone service, another non-video service that potentially may be provided using MDS/ITFS spectrum. *Id.*

[295] *Id.* at 6774-76 ¶¶ 122-126. The *NPRM* also deemed it unlikely that cable operators would acquire MDT/ITFS licenses in order to foreclose entry by a wireless MVPD provider and observed that new MDS licensees are "very unlikely" to be entrants into the MVPD markets, particularly since MDS video providers have penetrated very few markets. *Id.* at 6774-75 ¶ 122.

would have a negative impact on broadband internet markets.[296] We also sought comment on our preliminary conclusion that broadband markets are "very highly concentrated," and requested comment to the contrary.[297]

166. In 1990, the Commission sought comment on whether it should prohibit or limit licensing or leasing of MDS and ITFS channels by a cable system within its franchised area.[298] The Commission determined that the issue required evaluation of the relative merits of two "mutually exclusive" benefits—cable systems' ability to expand service, particularly into less populated areas, and potential competitors' ability to provide significant competition to incumbent cable systems.[299] The Commission concluded that although the enhancement of existing multi-channel services was a significant and desirable benefit, a greater benefit was to be found in the introduction of competition to then-existing multi-channel services (essentially, incumbent cable systems).[300] Accordingly, based on its observation that wireless cable service ranked among the "most imminent" sources of competition to incumbent cable systems, the Commission decided to generally prohibit a cable operator, either directly or indirectly, from acquiring a license (either through an application for a new station, assignment of a license, or transfer of control) or lease for an MDS station whose PSA overlaps its franchise area, or a lease for use of an ITFS station whose transmitter was within 20 miles of any part of its franchise area, unless there was another cable system in that franchise area operating in a substantial portion of the PSA of the proposed MDS station.[301]

167. The 1990 cable cross-ownership restrictions contained an exemption that allowed cable operators to acquire MDS spectrum in rural areas that would otherwise remain unserved by wireless cable.[302] The rural exemption was modeled after the cable/telco cross-ownership prohibition, which the Commission expected to "speed the introduction of multichannel service to customers in sparsely populated areas without appreciably reducing realistic and desired opportunities for wireless cable operators to introduce service competitive with existing cable service."[303] The *1990 R&O* also grandfathered existing cable/wireless operations and contracts, rather than forcing divestiture, on the ground that divestiture would be a hardship to cable operators and their customers and would be

[296] *Id.* at 6774-76 ¶¶ 123, 126.

[297] *Id.*

[298] *See 1990 R&O*, 5 FCC Rcd at 6417 ¶ 42. Before 1990 the Commission permitted cable systems to operate MDS (and OFS) channels within their franchise areas. *See id.* at 6416 ¶ 41.

[299] *Id.* at 6417 ¶ 42.

[300] *Id.* In the early 1990s, the MVPD market differed greatly from that market today. For example, in 1993, cable services accounted for nearly 100% of the MVPD market while DBS service was launched for the first time that same year. In contrast, as of 2003, DBS services accounted for 21.6% of the MVPD market nationwide while MDS services accounted for a mere 1.3%. *See In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Tenth Annual Report, MB Docket No. 03-172, 19 FCC Rcd 1606 ¶¶ 4, 5 & 16 (rel. Jan. 28, 2004) (*Tenth MVPD Report*).

[301] *1990 R&O*, 5 FCC Rcd at 6417 ¶ 42.

[302] The application process adopted for cable operators provided that otherwise acceptable cable system applications for MDS channels would be put on public notice for 30 days and could be granted provided no non-cable party filed an application. *Id.* at 6417 ¶ 43. The Commission also sought comment on how to define a local programming exception to the 1990 restrictions. *1991 R&O*, 6 FCC Rcd at 6799 ¶ 34.

[303] *Id.* at 6799 ¶ 37.

unnecessary given the limited number of systems operated by cable companies.[304] Finally, the *1990 R&O* created a local programming exception to the licensing and leasing prohibitions of Sections 21.912 and 74.931(e), and created a "limited exception" to the 1990 prohibitions for "MDS and ITFS channels used in the delivery to multiple cable headends or locally produced programming, that is, programming produced in or near the cable operator's franchise area and not broadcast on a television station available within that franchise area."[305] Under this exception, which the Commission expected to permit and promote an additional outlet for locally originated programming, a cable operator was permitted "one MDS channel, or its equivalent in ITFS excess capacity, in an MDS PSA."[306] This local programming exception, together with the restrictions on that exception, also applied to leases executed to facilitate the provision of local programming.[307] If local programming was terminated, any MDS license granted under the exception was to be automatically forfeited on the day after the local programming was discontinued.[308]

168. In 1992, Section 613(a)'s restrictions on cable cross-ownership were enacted as part of legislation that generally directed the Commission to set "horizontal" limits on cable operators' scale (i.e., the number of cable subscribers an operator could reach through its cable systems, or systems in which it had an attributable interest) and "vertical" limits on cable operators' integration with video programmers (i.e., suppliers of video programs to be carried over the cable operators' systems).[309] In 1993, the Commission determined that its 1990 cable cross-ownership rules, albeit with some modification, "effectively implement[ed]" the cable cross-ownership restrictions of Section 613(a).[310] Those preexisting rules generally prohibited cable systems that are the sole providers in their franchise areas from holding MDS licenses and from leasing time on MDS or ITFS stations within their franchise areas.[311] The *1993*

[304] *Id.* at 6799 ¶ 39. The Commission also grandfathered, on equitable grounds, cable applications for MDS channels filed before February 8, 1990, as well as lease agreements between cable and MDS or ITFS entities for which a lease or a firm and enforceable agreement was signed prior to the same date. *Id.*

[305] *Id.* at 6800 ¶ 41.

[306] *Id.* In applying for an MDS channel, a cable operator was required to provide the proposed local programming within one year. *Id.*

[307] *Id.*

[308] *Id.*

[309] *See, e.g.*, Time Warner Entertainment Co. v. FCC, 240 F.3d 1126, 1128 (D.C. Circuit 2001), reh'g and reh'g en banc denied, May 4, 2001. *Time Warner* rejected restrictions the Commission, imposed pursuant to Section 613(f)(1) of the 1992 Cable Act, which was codified as 47 U.S.C. § 533(f)(1), in part on the ground that the Commission failed to show a non-conjectural harm to competition that was prevented by such restrictions. *Time Warner*, 240 F.3d at 1133-1136 ("Congress also sought to 'ensure that cable operators continue to expand, where economically justified, their capacity,'...and it specifically directed the FCC, in setting the ownership limit, to take into account the 'efficiencies and other benefits that might be gained through increased ownership or control.'") (quoting 1992 Cable Act, § 2(b)(3)).

[310] *See* In the Matter of Implementation of Section 11 and 13 of the Cable Television Consumer Protection and Competition Act of 1992, Horizontal and Vertical Ownership Limits, Cross-Ownership Limitations, and Anti-Trafficking Provisions, *Report and Order and Further Notice of Proposed Rulemaking*, 8 FCC Rcd 6828, 6842 ¶ 101 (1993) *(1993 Cable R&O)*.

[311] Section 613 was added to the Act by Section 11(a) of the Cable Television Consumer Protection and Competition Act 1992, Pub. L. No. 102-385, 106 Stat. 1460 (1992 Cable Act). *See 1993 Cable R&O*, 8 FCC Rcd at 6841-44 ¶¶ 92-112. The rules in existence when Section 613 was enacted had been promulgated in proceedings that began in (continued....)

Cable R&O sought to allow cable operators greater flexibility in providing MDS in unserved portions of their franchise areas by prohibiting cable/MDS cross-ownership only if a cable operator's actual service area overlapped with the MDS PSA.[312] This was more lenient than the 1990 rules, which prohibited cable cross-ownership throughout the franchise area and the MDS protected area if there was any overlap between the two.[313]

169. In the decade following the *1993 Cable R&O*, MDS service initially gained market share but then peaked in mid-1998, with MDS representing only 1.3% of the MVPD market.[314] In January 2004, we observed that the wireless cable industry provides competition to the cable industry in only limited areas and that subscribership to MDS has been steadily declining over the last several years, notwithstanding that the deployment and use of MDS services (together with large dish satellite services) has contributed significantly to the early acceptance of non-wireline alternatives to traditional MVPD service.[315] While cable served almost 100% of the nation's MVPD subscribers in 1993, in 2003, that share had fallen to approximately 75%, with DBS providing the most significant competitive alternative with a 21.6% share of the national MVPD market.[316]

170. In 1998, the Commission released the *Two-Way Order* permitting MDS/ITFS licensees to construct digital two-way Internet service via cellularized communication systems.[317] As a result, MDS/ITFS licensees began to turn away from offering video service and began to focus on data delivery service.[318] In the *NPRM*, we observed that the typical broadband internet market is highly concentrated.[319] Despite this concentration, we noted that in some circumstances there could be substantial benefits to allowing the incumbent cable or DSL operator to have more access to MDS/ITFS spectrum.[320] We noted that such cable or DSL operator access may benefit rural areas where expensive upgrades to cable or DSL plants were not feasible.[321] We sought comment as to whether allowing incumbent cable operators and/or DSL providers to be eligible to obtain MDS/ITFS licenses could have a negative impact on some broadband interest markets.

171. *Discussion.* Section 613(a) of the Act states:[322]

(Continued from previous page)
1990. *See 1991 R&O*, 6 FCC Rcd at 6799 ¶ *34* (summarizing *Report and Order* in Gen. Docket Nos. 90-54 and 80-113, 5 FCC Rcd 6410 (1990)).

[312] *1993 Cable R&O*, 8 FCC Rcd at 6843 ¶ 103.

[313] *See Tenth MVPD Report*, 19 FCC Rcd at 1672-73 ¶ 103.

[314] *See id.* at 1613-16 ¶ 16.

[315] *Id.* at 1610 ¶ 9.

[316] *Id.* at 1608-9, 1613-16 ¶¶ 4 (cable market share), 5 (DBS growth after 1988 initial authorization and 1993 service initiation) & 16 (DBS market share).

[317] *Two-Way FNPRM*, 13 FCC Rcd at 19112.

[318] *Tenth MVPD Report*, 19 FCC Rcd at 1663-64 ¶ 86.

[319] *NPRM*, 18 FCC Rcd at 6774-76 ¶¶ 123-125.

[320] *Id.* at 6775-76 ¶ 125.

[321] *Id.*

[322] 47 U.S.C. § 553(a).

> It shall be unlawful for a cable operator to hold a license for multichannel multipoint distribution service, or to offer satellite master antenna television service separate and apart from any franchised cable service, in any portion of the franchise area served by that cable operator's cable system.
>
> The Commission may waive the requirements of this paragraph to the extent the Commission determines is necessary to ensure that all significant portions of a franchise area are able to obtain video programming.[323]

172. The purposes behind the cable/MMDS cross-ownership restrictions were to address a concern "that common ownership of different means of video distribution may reduce competition and limit the diversity of voices available to the public" and to prevent a cable operator from warehousing potential competition.[324] Since channels in the new BRS and EBS bands may continue to be used for video distribution, these concerns are still potentially relevant in the BRS/EBS band. Moreover, since MMDS licensees will become licensees in the BRS/EBS band, we do not believe that it would be consistent with Congressional intent to allow cable operators to hold BRS/EBS licenses for the purpose of distributing multichannel video service. Accordingly, subject to the present exceptions in our rules, we will continue to prohibit cable operators from holding BRS/EBS licenses and using those licenses to offer multichannel video programming service.

173. On the other hand, we do not believe that the statute requires us to prohibit cable

[323] 47 U.S.C. § 553(a)(2).

[324] *1993 Cable R&O*, 8 FCC Rcd at 6841 ¶¶ 92-94.

[345] Earthlink Comments at 15-16.

operators from holding BRS/ITFS licenses for the purpose of providing broadband data services or voice. We conclude that Section 613(a) does not apply to broadband services. The Commission did not allow MMDS licensees to provide such services until the Digital Declaratory Ruling was released in 1996, which was four years after the statute was enacted. Today, we create a new radio service designed to allow licensees to offer services that were not even contemplated when the statute was passed. We do not see any basis in the statutory language or legislative history for interpreting the statute so as to prohibit cable operators from providing services that did not exist when the prohibition was enacted. We note that Earthlink argues that Section 613 bars cable operators from acquiring MDS spectrum to offer non-video services, and that waiving Section 613's restrictions for cable operators would thwart broadband competition.[345] We reject that argument because the statute was clearly designed to address competition in the multi-channel video programming market, not broadband competition. We also reject as speculative and unsupported Earthlink's argument that Section 613 was left in place when Congress passed the 1996 Act because that provision is necessary to prevent the anti-competitive effects that would occur if a cable operator were able to purchase or control alternative facilities that a competitor might use to compete with the incumbent cable operator.[346]

174. With respect to DSL providers, there is no statutory prohibition similar to Section 613 that would require us to consider cross-ownership restrictions and, in any event, ILECs already have access to MDS/ITFS spectrum and this existing eligibility has caused no apparent problems. We also reject as inapposite Earthlink's argument that Section 652 of the Act, which prohibits cross-ownership of an ILEC and a cable television system, should be interpreted to support a general ban on common ownership of alternative broadband facilities.[347] Nothing in Section 652 addresses eligibility restrictions on radio spectrum.

175. Despite these bases for declining to impose cross-ownership restrictions on broadband services, Earthlink, Teton and NAF favor imposing such restrictions, arguing that the high broadband internet market share that cable operators and DSL providers enjoy gives those parties the incentive to acquire BRS/ITFS spectrum in order to thwart competition in that market.[348] When assessing the need to restrict the opportunity of any class of service provider to obtain spectrum for the provision of communications services, our overall goal has been to determine whether the restriction is necessary to ensure that consumers will receive communications services in a spectrum-efficient manner and at reasonable prices. Under our precedent, eligibility restrictions are imposed only when (1) there is a significant likelihood of substantial competitive harm in specific markets, and (2) eligibility restrictions will be effective in addressing such harm. Under this standard, the Commission relies on market forces to guide license assignment absent a compelling showing that regulatory intervention to exclude potential participants is necessary.[349] Those in favor of restricting the eligibility of cable operators and DSL providers to acquire BRS/ITFS licenses have not shown that this standard is met. They have not cited

[346] Earthlink Comments at 16-17.

[347] Earthlink Comments at 17.

[348] *See* Earthlink Comments at 17; Teton Comments at 6-7 ("... Teton believes that the Commission should refrain from opening eligibility for MDS spectrum to cable and DSL interests. At a minimum, the Commission should retain the cable/MDS cross ownership restrictions in rural markets where DSL and cable have a virtual lock on the broadband market."); Teton Reply Comments at 14 (same); NAF Reply Comments at 35 ("In the absence of cross-ownership limits, cable and LEC competitors will simply acquire rights in competing spectrum, blocking access to competitors.").

[349] *NPRM*, 18 FCC Rcd at 6773, ¶ 121.

relevant market facts and circumstances sufficient to demonstrate that the eligibility of such service providers is likely to result in substantial competitive harm or that, even if specific markets experienced harm to competition, the eligibility restrictions they advocate would be effective in eliminating that harm.[350]

176. We conclude therefore that cable operators and ILECs alike should be allowed to acquire or lease BRS/ITFS spectrum in order to provide non-video services like broadband internet access. In light of Section 613(a)'s language and context we do, however, prohibit cable operators from acquiring BRS/ITFS licenses outright for the purpose of providing MVPD service. We also retain the related ban on cable operators leasing BRS/ITFS spectrum within their franchise areas for the purpose of providing MVPD service, but allow leasing for other purposes.

3. Leasing and Secondary Markets

177. In 2003, we took significant steps to facilitate the development of Secondary Markets in spectrum usage rights involving our wireless radio services when we adopted our *Secondary Markets Report and Order* and *Further Notice of Proposed Rulemaking*.[356] In the *Report and Order*, we established policies and rules to enable spectrum users to gain access to licensed spectrum by entering into different types of spectrum leasing arrangements with licensees in most wireless radio services.[357] In addition, we streamlined the Commission's approval procedures for license assignments and transfers of control in most wireless radio services.[358] In the *Further Notice*, we proposed several additional steps we could take to facilitate the development of these Secondary Markets.[359] We also sought comment on

[350] *See NPRM*, 18 FCC Rcd at 6773-74, ¶ 121.

[356] *See generally* Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, *Report and Order and Further Notice of Proposed Rulemaking*, 18 FCC Rcd 20604 (2003) (*Secondary Markets Report and Order* and *Further Notice*, respectively) Erratum, 18 FCC Rcd 24817 (2003).

[357] *See generally Report and Order*, 18 FCC Rcd at 20607-82 ¶¶ 1-194.

[358] *See generally id.* at 20682-85 ¶¶ 195-203.

[359] *See generally Secondary Markets Further Notice*, 18 FCC Rcd at 20687-20719 ¶¶ 213-323.

whether the spectrum leasing policies should be extended to, inter alia, MDS and ITFS.[360] Given that we are undertaking a comprehensive examination of the rules relating to these services in this *Report and Order*, and given the close relationship between the leasing rules and other issues raised in this proceeding, we will address in this *Report and Order* the question raised in the *FNPRM* of whether the rules adopted in the *Secondary Markets Report and Order* should apply to the BRS/EBS spectrum.

178. Commenters generally supported extending the spectrum leasing policies adopted in the *Report and Order* to ITFS and MDS leasing.[361] Commenters also recommended grandfathering existing leasing arrangements that have evolved under the distinct leasing model historically applicable to ITFS.[362] NIA/CTN also argue that the substantive requirements currently applicable to ITFS leasing should continue to apply to leases entered into under the Secondary Markets spectrum leasing framework.[363]

179. We agree with the commenters that we should extend the rules and policies adopted in the *Secondary Markets Report and Order* to the BRS/EBS spectrum. In the *Secondary Markets Report and Order*, we took important first steps to facilitate significantly broader access to valuable spectrum resources by enabling a wide array of facilities-based providers of broadband and other communications services to enter into spectrum leasing arrangements with Wireless Radio Service licensees. These flexible policies continue our evolution toward greater reliance on the marketplace to expand the scope of available wireless services and devices, leading to more efficient and dynamic use of the important spectrum resource to the ultimate benefit of consumers throughout the country. Facilitating the development of these Secondary Markets enhances and complements several of the Commission's major policy initiatives and public interest objectives, including our efforts to encourage the development of broadband services for all Americans, promote increased facilities-based competition among service providers, enhance economic opportunities and access for the provision of communications services, and enable development of additional and innovative services in rural areas.[364] We agree with the commenters that there is no reason to deprive licensees in the BRS/EBS spectrum of the benefits of these rules and policies. We also agree with WCA that extending those rules and policies to the BRS/EBS spectrum will establish regulatory parity with other services that may be used to provide broadband services.[365]

180. We also agree with commenters that existing leases entered into under our existing ITFS leasing framework should be grandfathered, so long as the leases remain in effect and are not materially changed. We agree with NIA/CTN that it would be unduly burdensome to force licensees that wish to have their existing leases remain in effect to renegotiate those leases to comply with our Secondary Markets policies and rules.[366] Specifically, although our Secondary Market rules limit spectrum leasing arrangements to the length of the license term, we will allow pre-existing ITFS leases to remain in effect

[360] *Id.* at 20708-16 ¶¶ 288-314.

[361] *See* BellSouth Comments at 6-10; NIA/CTN Comments at 1-9 and Reply Comments at 1-3; SBC Comments at 12-13; Spectrum Market LLC Comments at 4-5; Sprint Comments at 4-6; WCA Comments at 1-8. Unless otherwise noted, all comments cited in this section were filed in WT Docket No. 00-230.

[362] WCA Comments at 6-7, NIA/CTN Comments at 7-8.

[363] NIA/CTN Comments at 5-6.

[364] *See generally Secondary Markets Report and Order*, 18 FCC Rcd at 20607 ¶ 2.

[365] WCA Comments at 7.

[366] NIA/CTN Comments at 7.

for up to fifteen years, consistent with our current rules.[367] With respect to future spectrum leasing arrangements entered into pursuant to our Part 27 rules for EBS, however, consistent with our treatment of other services, we believe it is appropriate to limit the spectrum lease term to the length of the license term in question.

181. In addition, we agree with NIA/CTN that the substantive use requirements that have historically applied to ITFS must remain in effect in the spectrum leasing context.[368] NIA/CTN describes the "most significant" limitations as: "(i) there must be certain minimum educational uses of ITFS spectrum (typically, a minimum of 20 hours per 6 MHz channel per week); (ii) for analog facilities, there must be a right to recapture an additional amount of capacity for educational purposes (typically, 20 more hours per channel per week); for digital facilities, the licensee must reserve at least 5% of its transmission capacity for educational purposes; (iii) the lease term may not exceed 15 years; (iv) the ITFS licensee must retain responsibility for compliance with FCC rules regarding station construction and operation; (v) only the ITFS licensee can file FCC applications for modifications to its station's facilities; and (vi) the ITFS licensee must retain some right to acquire the ITFS transmission equipment, or comparable equipment, upon termination of the lease agreement."[369] As NIA/CTN notes, the purpose behind these limitations was to maintain the traditional educational purposes of ITFS.[370] We believe that the continued application of these substantial use limitations, as well as the retention of ITFS eligibility requirements in Section C, will facilitate the traditional educational purposes of ITFS. Accordingly, we will apply the spectrum leasing rules and policies adopted in the Secondary Markets proceeding to the BRS/EBS band, while grandfathering existing leases entered into under our prior leasing policy and retaining EBS substantive use requirements.

D. Standardization of Practices and Procedures

1. Consolidation of Procedural Rules in Part 1

182. *Background.* In the ULS *R&O*, the Commission consolidated the majority of its wireless services procedural rules into Part 1.[371] By consolidating the procedural rules in Part 1, the Commission improved the consistency of its rules across wireless services and provided a single point of reference for applicants, licensees, and members of the public seeking information regarding our licensing procedures.[372] Additionally, the consolidation reduced confusion among applicants and licensees, accelerated the application process, and improved the speed with which wireless carriers were able to provide service to the public.[373] Because consolidation of procedural rules into Part 1 has proven beneficial to other wireless services, in the *NPRM*, we sought comment on consolidating the MDS and

[367] *See id.* at 8.

[368] *Id.* at 5-6.

[369] *Id.* at 4.

[370] *Id.*

[371] Biennial Regulatory Review – Amendment of Parts 0, 1, 13, 22, 24, 26, 27, 80, 87, 90, 95, 97, and 101 of the Commission's Rules to Facilitate the Development and Use of the Universal Licensing System in the Wireless Telecommunications Services, *Report and Order*, 13 FCC Rcd 21027, 21054 ¶ 56 (1998) (*ULS R&O*). *See NPRM*, 18 FCC Rcd at 6787 ¶ 159.

[372] *See id.*

[373] *See id.*

ITFS procedural rules into Part 1 of the Commission's Rules.[374]

183. *Discussion.* After reviewing the comments we received on this issue, we conclude that we will consolidate the BRS and EBS procedural rules into Subpart F of Part 1 of the Commission's Rules,[375] which contains the rules applicable to the processing of applications for all services in the Universal Licensing System. We agree with commenters that this action will decrease confusion concerning the application of our BRS and EBS rules. For example, the Coalition recognizes that the Commission's Wireless Telecommunications Bureau (WTB) has efficiently processed applications under Subpart F of Part 1 of the Commission's Rules and believes that, with appropriate consideration of the particular needs of MDS and ITFS, Part 1 can be modified to provide for the licensing of MDS and ITFS facilities without undue impact on processing systems.[376] Likewise, Bell South supports standardizing filing requirements and transition to new forms and processing rules through consolidating procedural rules into Part 1 like the majority of wireless services.[377] OWTC also approves of a consolidation of the MDS and ITFS application procedures and explains that since regulation of the MDS service was transferred from the former Mass Media Bureau to WTB (and from BLS to ULS), it is logical to consolidate the MDS procedural rules into Part 1 as is done in the majority of wireless services.[378] Similarly, Teton is in favor of the Commission merging MDS and ITFS into a single MDS/ITFS spectrum with streamlined processing rules.[379] Accordingly, in consolidating the BRS and EBS procedural rules into Subpart F of Part 1 of the Commission's Rules, we adopt rules that benefit applicants, licensees and members of the public, by streamlining our processing rules as discussed in the sections that follow. By this action, we also realize a key policy objective in this rulemaking, which is simplifying the licensing process and deleting obsolete or unnecessary regulatory burdens.

2. Consolidation of Service Specific Rules in Part 27

184. *Background.* In the *NPRM*,[380] we noted that our MDS and ITFS service specific rules are currently contained in three rule parts - Parts 21, 73 and 74.[381] Part 21 contains our MDS rules while Parts 73 and 74 contain our ITFS rules. Although MDS and ITFS licensees use their licenses to provide similar services, our rules treat these licensees differently. For example, with regard to modifications, a major modification in MDS is currently triggered by, among other things, a change in the geographic coordinates of a station's transmitting antenna of more than ten seconds of latitude or longitude or both, or any change which increases the antenna height by three meters or more.[382] In contrast, a major change to an ITFS Station is triggered by, among other things, relocating a facility's transmitter site by 10 miles or

[374] *See id.* at 6786 at ¶ 159.

[375] *See* 47 C.F.R. § 1. 901 *et seq.*

[376] *See* Coalition Comments at 135.

[377] *See* BellSouth Comments at 13-14 n.21; OWTC Comments at 6.

[378] *See* OWTC Comments at 6.

[379] *See* Teton Comments at 15-16.

[380] *See NPRM*, 18 FCC Rcd at 6786 ¶ 160.

[381] *See* 47 C.F.R. §§ 21.1 *et seq.*, 73.1 *et seq.*, and 74.1 *et seq.*

[382] *See* 47 C.F.R. § 21.23.

more, or increasing the transmitting antenna height by 25 feet or more.[383]

185. In the *NPRM*, we stated that we believe that regulatory parity will lead to efficiency in this band and spur the development of new and improved services for the public. Additionally, we stated that consolidating the MDS and ITFS service specific rules into one rule part will reduce confusion and provide a single reference point for these similar services. Because we believe that consolidation will benefit applicants, licensees and members of the public, we proposed to consolidate the MDS and ITFS service specific rules into Part 101. However, we also sought comment on alternative means of consolidating the rules relating to these services, such as incorporating the rules into Parts 21 or 27 of our Rules.[384]

186. *Discussion.* After careful consideration of the comments we received on this issue, we conclude that consolidating the service specific rules for BRS and EBS into Part 27 of the Commission's Rules is the most sensible approach given the flexible use and geographically-licensed service areas that are at the heart of our Part 27 rules.[385] As an initial matter, the licensing plan and service rules we adopt today are consistent with the fundamental goals established in the Commission's November 1999 Spectrum Policy Statement, which includes promoting greater efficiency in spectrum markets.[386] The Commission therein recognized that where appropriate, greater efficiency can be achieved through flexibility, which can be permitted through the use of relaxed service rules.[387] Regarding the encouragement of emerging telecommunications technologies, the Commission also recognized that there are substantial public interest benefits to harmonizing the rules applicable to like services including efficiency in spectrum markets and regulatory neutrality, which help create a level playing field across technologies and thereby promote more effective competition. The Commission in the 1999 Spectrum Policy Statement also observed that such a structure would permit reliance on the marketplace to achieve the highest-valued use of the spectrum, thereby ensuring that the Commission and its processes do not become a bottleneck in bringing new radio communications services and technologies to the public.[388]

187. We believe there are substantial public interest benefits to harmonizing rules applicable to like services, which is best accomplished by placing the service specific rules for BRS/EBS in Part 27 of the Commission's Rules. The Coalition asserts that the MDS and ITFS services should be regulated

[383] *See* 47 C.F.R. § 74.911(b).

[384] *See id.*

[385] *See* 47 C.F.R. § 27.1 *et seq.* In explaining the Part 27 objectives, the Commission stated that "we believe that a flexible licensing approach will allow licensees the freedom to determine the services to be offered and the technologies to be used in providing those services. This flexibility will better enable licensees to use their assigned frequencies in response to market forces...In light of these considerations, we believe that the general application of our Part 27 licensing and operating rules will promote flexible and efficient use of the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands and the paired 1392-1395 MHz and 1432-1435 MHz bands. We agree with the commenters that application of our Part 27 rules will provide licensees a streamlined licensing framework that will foster innovation, flexible use and regulatory certainty." Amendments to Parts 1, 2, 27 and 90 of the Commission's Rules to License Services in the 216-220 MHz, 1390-1395 MHz, 1670-1675 MHz and 2385-2390 MHz Government Transfer Bands, WT Docket No. 02-8, RM-9267, RM-9692, RM-9797, RM-9854, RM-9882, *Report and Order*, 17 FCC Rcd 9980, 9988 ¶¶ 10-11 (2002) (*27 MHz R&O*) (footnotes omitted).

[386] *See 1999 Spectrum Policy Statement*, 14 FCC Rcd at 19870-71 ¶ 9.

[387] *See id.*

[388] *See id.*

pursuant to Part 27 of the Commission's Rules, which the Commission originally created for the Wireless Communications Service ("WCS") and has since applied to other flexible use, geographically licensed wireless services.[389] Likewise, EarthLink supports discarding the Commission's broadcast-style regulatory model for MDS and ITFS and supports switching to a Part 27-like regulatory scheme.[390] Consistent with our determinations with respect to other wireless services, the BRS/EBS spectrum's regulatory structure assumes that consumer benefits will be maximized if BRS/EBS licensees are able to take advantage of the flexible use standard in Part 27. We believe that applying the flexible use standard in Part 27 to BRS and EBS licensees will enable licensees to construct and operate facilities within their GSAs with the least amount of regulation.[391]

188. We note that BellSouth supported the proposal in the *NPRM* to consolidate service-specific rules into Part 101, but did not voice any opposition to placing the service specific rules in Part 27.[392] On the other hand, OWTC prefers to keep the service rules for MDS, ITFS and other fixed wireless services separate. OWTC believes that while consolidation of procedural rules is sensible and could lead to a streamlining of application and other procedures, the service rules for each unique service must be clear and unambiguous in order to prevent licensee and market confusion.[393]

189. However, we agree with the Coalition that Part 101 is not best suited for the BRS and EBS service specific rules. Part 101 of the Commission's rules generally was not created for the flexible use, wide-area services that BRS and EBS services will be authorized to provide as the BRS/EBS spectrum.[394] Furthermore, we note that the Commission created Part 101 to simplify and conform the rules for point-to-point, Part 21 common carrier and Part 94 private operational fixed microwave services,[395] in recognition of the fact that those services shared many of the same frequency bands, used substantially the same equipment and had converged their technical standards over time.[396] In so doing, the Commission specifically excluded MDS and ITFS from Part 101, noting that "[t]he ITFS and MDS services differ from the services to be included in Part 101 in terms of policy considerations, applicable rules, and technical standards."[397] We concur with the Coalition that to the extent that the regulatory

[389] *See* Coalition Comments at 132-133.

[390] *See* EarthLink Comments at 7.

[391] *See 27 MHz R&O*, 17 FCC Rcd at 9988 ¶¶ 9-10; *see also supra* n.385.

[392] *See* BellSouth Comments at 13-14 n.21.

[393] *See* OWTC Comments at 7. We do note that OWTC proposed an alternative approach to create consolidated service rules for similar aspects of the respective unique services, but then have distinct service rule subparts when the historical service rules diverge from each other for each unique service.

[394] *See* 47 C.F.R. 101.1 *et seq.* "[W]e find that a flexible, market-based approach is the most appropriate method for determining services rules in [the Upper 700 MHz Band]....To comport with the range of potential service applications on these bands, and our intended use of Part 27 as a basic regulatory framework for service rules governing other bands, we have also recast the structure of the Part 27 rules to reflect their revised scope." In the Matter of Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules. *First Report and Order*, 15 FCC Rcd 476, 478 ¶ 2 (2000) (footnotes omitted) (*Upper 700 MHz First R&O*).

[395] *See* 47 C.F.R. §§ 21.1 *et. seq.* and 90.1 *et. seq.*

[396] *See* Reorganization and Revision of Parts 1, 2, 21, and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services, *Notice of Proposed Rulemaking*, 10 FCC Rcd 2508, 2509 ¶ 2 (1994) (*Part 101 NPRM*).

[397] *Id.*, 10 FCC Rcd at 2509 n. 4 (1994).

regimes applicable to MDS and ITFS have changed, they have moved further away from those imposed on the typical Part 101 service.[398]

190. While it is true that the Commission regulates LMDS licensees under Part 101 and LMDS has some similarities to BRS, the decision to regulate LMDS pursuant to Part 101 predated the creation of Part 27, and the Commission has since recognized that Part 27 is better suited for flexible use services.[399] Although geographically licensed wireless services in the 24 GHz and 39 GHz bands are also regulated under Part 101, this is attributable to the fact that licensees in those bands were regulated under Part 101 prior to the Commission's adoption of geographic licensing rules for such services.[400] Accordingly, we adopt service specific rules for BRS and EBS in Part 27 of the Commission's Rules, thereby providing a single reference point for these similar services, as opposed to having the rules for these services in three different rule parts. This streamlining will benefit applicants, licensees and the public by promoting innovation and maximizing flexibility in the service rules.

3. Standardization of Major and Minor Filing Requirements:

191. *Background.* MDS licensees currently submit FCC Forms 304 or 331 to modify their licenses pursuant to Sections 21.40 and 21.41 of our Rules.[401] The Commission will not grant a "major modification" to an MDS station unless it finds that the modification is in the public interest and in compliance with Communications Act.[402] A major modification to an MDS license includes amendments that require submission of an environmental assessment, result in a substantial and material alteration of the proposed service, specify a substantial change in beneficial ownership or control, or is deemed substantial by the Commission pursuant to section 309 of the Communication Act.[403]

192. In contrast, EBS licensees currently file a formal application on FCC Form 330 for any

[398] *See* WCA Comments at 134. *See also* discussion of regulatory fees in *FNPRM* at V.D, *infra.*

[399] *See, e.g.*, Amendment to Parts 2, 15 and 97 of the Commission's Rules To Permit Use of Radio Frequencies Above 40 GHz for New Radio Applications, *Memorandum Opinion and Order on Reconsideration and Notice of Proposed Rulemaking*, 13 FCC Rcd 16947, 16969-70 ¶ 54 (1998) ("While the Commission has adopted service rules for LMDS in Part 101 of the Commission's Rules, the Commission has also adopted a new set of service rules, in Part 27 of the Commission's Rules, for wireless services in the 2.3 GHz band. These rules provide a licensing framework that may be more appropriate than the Part 101 rules in that they provide for much greater flexibility in the types of services that can be provided and in the technical and operational rules that govern those services.") (footnotes omitted).

[400] *See generally* Amendment of the Commission's Rules to Relocate the Digital Electronic Message Service From the 18 GHz Band to the 24 GHz Band and to Allocate the 24 GHz Band For Fixed Service, *Order*, 12 FCC Rcd 3471, 3476 ¶ 13 (1997); *39 GHz R&O*, 12 FCC Rcd at 18637 ¶ 77 (1997).

[401] 47 C.F.R. §§ 21.40, 21.41.

[402] *See* 47 C.F.R. § 21.40. A major modification for an MDS license includes a substantial modification of the engineering proposal such as (but not limited to) a change in, or addition of, a radio frequency channel; a change in polarization of the transmitted signal; a change in type of transmitter emission or an increase in emission bandwidth of more than ten percent; a change in the geographic coordinates of a station's transmitting antenna of more than ten seconds of latitude or longitude or both; any change which increases the antenna height by three meters or more; any technical change that would increase the effective radiated power in any direction by more than 1.5 dB; or any changes or combination of changes that would cause harmful electrical interference to an authorized facility or result in a mutually exclusive conflict with another pending application. 47 C.F.R. § 21.23.

[403] *Id.*

of the following kinds of changes or modifications to its transmission system: adding a new channel; changing channels; changing polarization; increasing the EIRP in any direction by more than 1.5 dB; increasing the transmitting height by twenty-five feet or more; or relocating a facility's transmitter site by ten miles or more.[404] Our current rules further provide that applications for "major changes" to existing EBS facilities that are mutually exclusive with other such applications or with applications for new stations are subject to competitive bidding.[405] EBS minor modification applications may be filed at any time and are not be subject to competitive bidding.[406] Subject to Commission approval, our existing rules also permit certain parties to involuntarily modify the facilities of an existing EBS licensee in certain situations.[407]

193. In sharp contrast to the policies described above, the Commission has adopted one streamlined set of modification rules for services license using ULS.[408] Under ULS, we treat all major modifications as new applications.[409] Licensees may make minor modifications as a matter of right without prior Commission approval (other than pro forma assignments and transfers) within thirty days of implementing such changes.[410] Where other rule parts permit licensees to make permissive changes to technical parameters without notifying the Commission (e.g., adding, modifying, or deleting internal sites), no notification is required when making a modification pursuant to the ULS rules.[411] This consolidation of modification rules has led to efficient processing of modification applications in ULS. Therefore, noting that the license modification rules for MDS and ITFS are currently spread across seven rules, we sought comment in the *NPRM* on consolidating these modification rules in one rule part.[412] In this connection, we proposed to consolidate the modification rules to determine major and minor modifications for MDS and ITFS licenses using the ULS Rules in Part 1 of the Commission's Rules.[413]

194. *Discussion.* After reviewing the limited comments we received on this issue, we conclude that there are substantial benefits to employing the simplified approach we use in ULS to govern modifications for BRS/EBS licensees. BellSouth supports the proposed new rules regarding standardizing filing requirements.[414] IMLC supports the Commission's proposals to eliminate the various unnecessary and unhelpful filings which MDS licensees must make, stating that outdated and unnecessary reports and requirements for MDS licensees should be abolished.[415] The Coalition believes that minor revisions to

[404] 47 C.F.R. § 74.951.

[405] 47 C.F.R. § 73.5000. We note that our rules permit ITFS licensees to exchange channels evenly with each other or with MDS licensees after filing pro forma applications. 47 C.F.R. § 74.902(f).

[406] Implementation of Section 309(j) of the Communications Act – Competitive Bidding for Commercial Broadcast and Instructional Television Fixed Service Licenses, *First Report and Order*, 13 FCC Rcd 15920 ¶ 207 (1998).

[407] *See* 47 C.F.R. § 74.986.

[408] *See* 47 C.F.R. § 1.929.

[409] *See* 47 C.F.R. § 1.947.

[410] *See* 47 C.F.R. § 1.929.

[411] *See* 47 C.F.R. § 1.947(b).

[412] *See NPRM*, 18 FCC Rcd at 6786 ¶ 160.

[413] *See NPRM*, 18 FCC Rcd at 6786 ¶¶ 161-163; *see also* 47 C.F.R. § 1.901 *et. seq.*

[414] *See* BellSouth Comments at 13-14 n.21.

[415] *See* IMLC Comments at iii, 8.

Section 1.929 are required to reflect the MBS Licensing Scheme and that with the development of appropriate individual standards for determining whether MBS filings are "major" or "minor," Section 1.929 can readily be amended to consolidate the MDS and ITFS major and minor change and major and minor amendment rules.[416]

195. We believe that using our Part 1 ULS modification rules for BRS and EBS modifications will simplify the licensing process by removing obsolete or unnecessary regulatory burdens and that no special rules are required for modifications to the MBS as suggested by the Coalition. The Coalition's belief that special modifications are required pursuant to Section 1.929 of our rules is premised on the assumption that we would employ site-based licensing for the MBS. However, inasmuch as we have adopted geographic area licensing for the entire band, including the MBS,[417] we need not adopt the modifications proposed by the Coalition.[418]

196. Employing the Part 1 ULS approach, as described above, for modifications to BRS and EBS licenses will reduce confusion regarding the appropriate rules to follow, increase the speed with which the Commission staff processes applications and will eliminate redundancy in our rules. Accordingly, today we adopt rules that consolidate the modification rules to determine major and minor modifications for BRS and EBS licenses under our ULS Part 1 modification rules. Consequently, at the end of the six month transition period to ULS, implementation of mandatory electronic filing will begin for BRS and EBS licensees.[419] MDS licensees currently submitting FCC Forms 304 or 331 to modify their licenses and EBS licensees currently submitting FCC Form 330 must begin using FCC Form 601 to report modifications to the Commission.[420]

4. Amendments to New and Modification Applications

[416] *See* Coalition Comments at 134 – 137. The Coalition states that minor revisions to Section 1.929 are required to reflect the MBS Licensing Scheme. With the development of appropriate individual standards for determining whether MBS filings are "major" or "minor," Section 1.929 can readily be amended to consolidate the MDS and ITFS major and minor change and major and minor amendment rules. The common "major changes" standards set forth in Section 1.929(a) would seem to be appropriately applied to ITFS and MDS applications, whether for the LBS/UBS or the MBS. WCA states, however, that additional "major changes" must be defined for applications for the MBS channels, so as to assure that the FCC and potentially-affected MDS and ITFS licensees will have a fair opportunity to evaluate the possibility of interference from proposed modifications or from amendments to pending applications. More specifically, the Coalition Proposal suggests that the Commission define as "major" for the MBS any application, or an amendment to pending application, that proposes any of the following: (i) any change in frequency; (ii) any change in polarization; (iii) any increase in height of the C/R of the transmitting antenna by more than 8 meters (26 feet); (iv) any relocation of the station by more than 1.6 km (1 mile); (v) any change in the frequency offset of an analog station (however, an analog station upgrading from no frequency offset to any specific frequency offset (minus, zero or plus) would not be deemed a major change); (vi) any increase in occupied bandwidth; or (vii) any change to the transmission system that results in an increase in EIRP of more than 1.5 dB in any direction. *Id.*

[417] *See* discussion of geographic area licensing at Section IV.A.4, *supra.*

[418] *See* n.416, *supra.*

[419] Once our new BRS/EBS rules become effective, there will be a six-month transition period after which before electronic filing in ULS mandatory for these services. *See* discussion of transition period to ULS electronic filing at Section IV.D.17 , *infra.*

[420] *See* discussion of FCC Forms at paras. 254-258, *infra.*

197. *Background.* In the *NPRM* we sought comment on whether we should adopt the consolidated wireless procedures under Part 1 of the Commission's rules for amendments to applications.[421] Generally, pursuant to this consolidated approach for processing wireless applications, applicants may file amendments to pending applications as a matter of right if we have not designated the application for hearing or listed it in a competitive bidding public notice as accepted for filing.[422] Likewise, where an amendment to an application constitutes a "major change" as defined in Section 1.929, we treat the amendment as a new application for determination of filing date, public notice, and petition to deny purposes.[423] Furthermore, under the consolidated wireless approach, where an amendment to an application specifies a substantial change in beneficial ownership or control (de jure or de facto) of an applicant, the applicant must provide an exhibit with the amended application containing an affirmative, factual showing as set forth in Section 1.948(h)(2).[424]

198. Our consolidated wireless procedures for amendments to wireless applications differ in some respects from our current approach to amendments for MDS and ITFS applications.[425] For example, ITFS applicants currently may amend applications to cure defects noted in deficiency letters to the applicant. MDS BTA applicants currently may amend a long-form application up to the date the application has appeared on public notice as accepted for filing or by written petition demonstrating good cause if the application is already on public notice. MDS operators have recommended that we revise our rules to use the same definitions for major and minor amendments as for major and minor modifications.[426]

199. *Discussion.* After reviewing the limited comments we received on this issue, we conclude that we will adopt the consolidated wireless procedures, contained in Part 1 of the Commission's Rules, for amendments to BRS and EBS applications. Consequently, at the end of the transition period to

[421] *See NPRM*, 18 FCC Rcd at 6786 ¶ 164.

[422] *See* 47 C.F.R. § 1.927.

[423] *See* 47 C.F.R. § 1.927(h).

[424] *See* 47 C.F.R. § 1.927(g).

[425] Our existing rules treat certain amendments as new applications that receive a new filing date as of the date the applicant submits the amendment. Amendments that we treat as new applications include applications submitted up to fourteen days after the application appeared as accepted on public notice that reflect any change in the technical specifications of the proposed facility; applications submitted with a new or modified analysis of potential interference to another facility; or applications submitted with an interference consent statement from a neighboring licensee. 47 C.F.R. § 21, 23. In such cases, the amended application must include an applicant certification that it has met all requirements regarding interference protection to existing and prior proposed facilities, and that it has obtained any necessary consent letters in lieu of interference protection. The applicant must also certify that it has served all potentially affected parties with copies of its amended application and engineering materials, and that the engineering analyses comply with the rules and methodology. *See* 47 C.F.R. §§ 21.23, 73.3522(a). Furthermore, ITFS applicants may amend applications to cure defects noted in deficiency letters to the applicant. *See* 47 C.F.R. § 73.3522(a). MDS BTA applicants may amend a long-form application up to the date the application has appeared on public notice as accepted for filing or by written petition demonstrating good cause if the application is already on public notice. *See* 47 C.F.R. § 21.926. In both services, applicants may not amend applications if the proposed amendment seeks more than a pro forma change of ownership or control.

[426] *See, e.g.*, IMLC Comments at iii, 8.

mandatory electronic filing under ULS,[427] BRS and EBS licensees will use FCC Form 601 to amend their applications.[428] This is yet another step in achieving a key policy objective in this rulemaking by simplifying the licensing process and deleting obsolete or unnecessary regulatory burdens.

5. Assignments of Authorization and Transfers of Control:

200. *Background.* In the *NPRM* we sought comment on proposing to revise our MDS and ITFS transaction requirements to conform to and merge with the ULS requirements in Section 1.948 of our rules.[429] Currently, our MDS licensees use FCC Form 305 to apply for voluntary and involuntary assignments, pro forma assignments, and FCC Form 306 to apply for voluntary transfers of control and pro forma transfers of control.[430] These licensees use FCC Form 304A to request a partial assignment.[431] However, the assignor must apply for deletion of the assigned facilities, indicating concurrence in an assignee's request.[432] The parties must consummate these transactions within forty-five days from the date of approval.[433] If the parties fail to consummate a partial assignment, the parties must submit FCC Form 304A to return the assignor's license to its original condition.[434] Before the Commission will consent to these transactions, the assignor/transferor must complete construction of the facility and file a certificate of completion of construction.[435]

201. Our current rules require the assignor/transferor to file the certificate of construction within one year from the initial license grant date, the consummation date of the transaction; or median date of the applicable commencement dates if the transaction involves a system of two or more stations. Our current rules also require an assignee/transferee to file FCC Form 430 License Qualification Report with the appropriate application form (Form 305 or Form 306) unless the assignee or transferee already has a current and substantially accurate report on file with the Commission. Finally, the parties of both transactions must notify the Commission of the date of consummation, by letter, within ten days of the

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[427] At the adoption of this order a six-month transition period will begin after before requiring mandatory electronic filing by MDS and ITFS applicants and licensees in ULS. *See* discussion of transition period to ULS electronic filing at Section IV.D.17 *infra.*

[428] *See* discussion of FCC forms at paras. 254-258 *infra.*

[429] *See NPRM,* 18 FCC Rcd at 6789-90 ¶¶ 165-170; *see also* 47 C.F.R. § 1.948.

[430] *See* 47 C.F.R. § 21.11(d) (Assignment of License); 47 C.F.R. § 21.11(e) (Transfer of control of corporation holding a conditional license or license); 47 C.F.R. § 21.13 (General Application Requirements); 47 C.F.R. § 21.15 (Technical Content of Applications); 47 C.F.R. § 21.17 (Certification of Financial Qualifications); 47 C.F.R. § 21.19 (Waiver of Rules); 47 C.F.R. § 21.38 (Assignment or Transfer of Station Authorizations); 47 C.F.R. § 21.39 (Considerations Involving Transfer or Assignment Applications); 47 C.F.R. § 21.912 (Cable Television Eligibility Requirements and MDS/Cable Cross Ownership); 47 U.S.C. § 310 (Limitation on Holding and Transfer of Licenses (Alien Ownership Restriction).

[431] 47 C.F.R. § 21.11(e).

[432] *Id.*

[433] *Id.*

[434] *Id.*

[435] *See* 47 C.F.R. § 21.934. We note that exceptions exist if there is not a substantial change in ownership or control of the authorized facility from the transaction (assignment/transfer); involuntary transaction due to the licensee's bankruptcy, death, or legal disability; and if the transaction involves BTA authorizations. *See id.*

date of consummation.

202. In contrast, ITFS licensees presently use Form 330 to request an assignment of license or a transfer of control.[436] With both types of transactions, ITFS licensees must file their applications at least forty-five days before the contemplated effective date of the transaction.[437] However, in the case of an involuntary transaction, the Commission must be notified in writing, promptly after the death or legal disability of a licensee.[438] Additionally, an application for involuntary transaction must be filed within thirty days of such occurrence.[439]

203. Recognizing, however that there would be significant benefits to eliminating inconsistencies between similar services, the Commission developed FCC Form 603 to process assignment of license and transfer of control applications in ULS. Specifically, the Commission found that replacing service specific forms with consolidated forms would provide the public with a consistent set of procedures and filing requirements and would increase the speed and accuracy of the assignment and transfer process.[440]

204. In the *NPRM*, we sought comment on proposing to revise our MDS and ITFS transaction requirements to conform to and merge with the ULS requirements in Section 1.948 of our rules.[441] Specifically, we proposed to eliminate the prior consent requirement for non-substantial, pro forma assignments in MDS, and extend the consummation notice period to 180 days for both services.[442] With regard to involuntary assignments, we proposed to integrate the MDS rules into our ULS consolidated rules.[443] Additionally, we proposed to revise our channel exchange procedures[444] to conform to our assignment of license procedures.[445] For example, our rules currently require both the filing of a major modification application to change a frequency assignment[446] and each licensee seeking to exchange channels must file separate pro forma assignment applications.[447] We found that this channel exchange procedure places an undue burden upon licensees and the Commission's resources.[448] As a result, we

[436] *See* 47 C.F.R. §§ 74.910, 73.3500.

[437] *See* 47 C.F.R. § 73.3540.

[438] *See* 47 C.F.R. § 73.3541.

[439] *Id.*

[440] *ULS R&O*, 13 FCC Rcd at 21079 ¶ 113.

[441] *See NPRM*, 18 FCC Rcd at 6789-91 ¶¶ 165-170.

[442] *See id.* at 6791 ¶ 169.

[443] *See id.*

[444] This procedure is burdensome in that it requires our engineers to generate and to enter a minor modification application into BLS for each channel that the parties seek to exchange. *See* 47 C.F.R. §§ 21.901(d), 74.902(f), 74.951(e).

[445] *See NPRM*, 18 FCC Rcd at 6791 ¶ 170.

[446] *See* 47 C.F.R. § 74.951(e).

[447] *See* 47 C.F.R. § 74.902; *see also* 47 C.F.R. § 21.901.

[448] The MDS and ITFS community has also asked that we make changes in this area. *See* Coalition Proposal at Appendix B n.49.